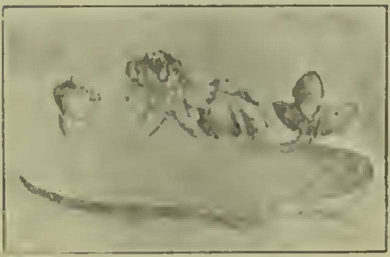
British Herbarium

THE BOTANICAL SOCIETY
AND EXCHANGE CLUB
OF THE BRITISH ISLES

(VOL. XIII. PART IV)

Victoria regia



Floreat Flora

REPORT FOR 1946

OF THE

BOTANICAL EXCHANGE CLUB

(Conveniently Abbreviated B.E.C. 1946 REP.)

BY

THE DISTRIBUTOR

CATHERINE ROB, F.L.S.

Printed by T. Buncle & Co. Ltd., Market Place, Arbroath.
November 1948.

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THE BOTANICAL SOCIETY AND EXCHANGE CLUB

OF THE BRITISH ISLES

Vol. XIII. 1945-47

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1945	1947, May	A. J. Wilmott, Esq. (Editor)	Part i.
1945	1947, May	J. Donald Grose, Esq. (Distributor)	Part ii.
1946-47	1948, Nov.	E. C. Wallace, Esq. (Editor)	Part iii.
1946	1948, Nov.	Catherine Rob, F.L.S. (Distributor)	Part iv.

THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

VOL. XIII. PART I.

REPORT FOR 1945

(WITH BALANCE SHEET FOR 1945),

BY

THE HONORARY EDITOR,

A. J. WILMOTT,

Natural History Museum, Cromwell Road, London, S.W.7.

(in the absence of E. C. Wallace on Active Service.)

PRICE 10s.

PUBLISHED BY
T. BUNCLE & CO. LTD., MARKET PLACE, ARBROATH.

May 1947.

NOTICE TO MEMBERS

APPLICATIONS FOR MEMBERSHIP

Applications for Membership should be sent to the Hon. General Secretary, Mr J. F. G. Chapple, Yardley Lodge, 9 Crick Road, Oxford.

SUBSCRIPTIONS

Subscriptions should be paid to the Treasurer, Mr J. E. Lousley, at 7 Penistone Road, Streatham Common, S.W.16. Members who have not yet paid their subscription for 1947 are asked to do so without delay.

MATERIAL FOR THE 1947 REPORT

Papers, Plant Notes, Plant Records, etc., should be sent to either of the Honorary Editors before January 31st 1948.

SPECIMENS FOR IDENTIFICATION

Ordinary specimens for identification may be sent to the Hon. General Secretary. Before sending critical material to the Society's Referees (see 1937 Report, 639-646) members should first ascertain from the Referee concerned whether he is in a position to determine specimens, as the list is now inaccurate. A new and revised list is being prepared which, it is hoped, will be published shortly.

PAST REPORTS REQUIRED

The Society is anxious to obtain copies of B.E.C. Reports for the years 1879, 1886, 1903, 1909, and 1910; Vol. III. parts 2 and 3, Vol. IV. parts 4 and 5, Vol. V. parts 1 and 3. Will anyone in possession of these parts who wishes to dispose of them please communicate with the Hon. General Secretary?

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PRICE 10s

The Editor does not hold himself responsible for Statements in Signed Contributions

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May 1947

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THE
BOTANICAL SOCIETY & EXCHANGE CLUB OF THE BRITISH ISLES

OFFICERS FOR 1946-47

ELECTED AT THE ANNUAL GENERAL MEETING,
MARCH 27TH, 1946

Chairman—The Rt. Hon. H. T. Baker, P.C.
Vice-Chairman—Dr J. Ramsbottom, O.B.E.
Hon. Secretary—Mr John F. G. Chapple.
Hon. Treasurer—Mr J. E. Lousley.
Hon. Joint Editors—Messrs E. C. Wallace and A. J. Wilmott.

COMMITTEE

Elected March 1937
Mr A. H. G. Alston.

Elected March 1938
Lady Davy.
Mrs Foggitt.
Dr W. A. Sledge.

Elected March 1939
Mr J. E. Dandy.
Mr A. E. Wade.

Elected March 1945
Mr G. M. Ash.
Mr J. P. M. Brenan.
Miss M. S. Campbell.
Dr J. G. Dony.
Mr J. S. L. Gilmour.

Elected March 1946
Dr N. Polunin.
Dr P. W. Richards.
Dr R. Melville.
Mr J. D. Grose.

Members Co-opted March 1946—Mr E. Milne-Redhead, Mr H. W. Pugsley, Mr N. Y. Sandwith.

SUB-COMMITTEES

Editorial Sub-Committee
Mr J. E. Lousley.
Mr J. S. L. Gilmour.
Mr N. Y. Sandwith.
The Hon. Joint Editors.

Excursions and Field-work Sub-Committee.
Mr A. H. G. Alston.
Mr J. P. M. Brenan.
Miss M. S. Campbell (Sec.).
Mr J. E. Lousley.

Rules Sub-Committee
The Editorial Sub-Committee with the addition of the Chairman.

Development Sub-Committee
Miss M. S. Campbell (Sec.).
Mr J. S. L. Gilmour.
Mr J. E. Lousley.
Mr E. Milne-Redhead.
Mr H. W. Pugsley.
Mr A. J. Wilmott.

EDITORIAL NOTES

This Report has been delayed partly by the illness of Mr Wilmott in the spring while Mr Wallace was still abroad, and later because of various suggestions made in replies to the Questionnaire, some of which would involve fundamental changes in its form. It therefore seemed undesirable to start a new volume in one manner and continue next year in another, if changes were accepted. On the other hand it was equally undesirable to prevent free discussion of the proposals by the printing of the first part of the new volume in the old style. The materials sent in were therefore prepared for the printer but kept back until the Committee had been able to give the proposals some consideration. Their decision was that the new volume (xiii) should contain the usual Annual Reports in the old style, with some minor modifications in detail, and that while this was appearing the various proposals should be carefully considered by the Development Sub-Committee on behalf of the Committee, and that such suggestions as were found desirable should take effect in volume xiv.

In order to catch up with this unexpected delay, the preparation of the Report for 1946 has been begun by Mr Wallace while Mr Wilmott has completed the present Report with which he had dealt while Mr Wallace was abroad.

A. J. Wilmott.
E. C. Wallace.

ACCOUNTS FOR THE YEAR 1945

GENERAL FUND

To Balance from 1944 ...	£474 3 8	By Printing (other than Report) and Stationery ...		£2 14 10
,, Interest on Post Office Savings Bank Deposit for 1944	5 19 6	,, Fire Insurance on Books, etc., at Yardley Lodge ...		0 10 0
,, Subscriptions received during the year	143 10 9	,, Honorarium to caretaker at Yardley Lodge (1944 and 1945)		3 3 0
,, Sale of Reports and Reprints	20 7 6	,, Postages and Petty Expenses :—		
		Treasurer ...	£5 5 2	
		do. (re Excursions) ...	0 10 0	
		Acting Secretary ...	5 0 0	
		Caretaker at Yardley Lodge	1 10 0	
				12 5 2
		,, Gratuities at Meetings ...		1 0 0
		,, Advertisement in Wild Flower Magazine		0 10 0
		,, Rubber Stamp and Pad for Exchange Section ...		0 10 1
		,, Balance		623 8 4
	£644 1 5			£644 1 5

PUBLICATIONS FUND

To Balance from 1944 ...	£198 19 4	By Balance	£240 10 5
,, Donations	5 10 0		
,, Sales of Comital Flora and British Plant List	36 1 1		
	£240 10 5		£240 10 5

LIFE MEMBERS' FUND

To Balance from 1944 ...	£177 8 11	By Balance	£191 8 11
,, Subscriptions compounded during the year	14 0 0		
	£191 8 11		£191 8 11

MISS TROWER'S FUND

To Balance from 1944 ...	£16 7 11	By Balance	£16 7 11
	£16 7 11		£16 7 11

BENEVOLENT FUND

To Balance from 1944 ...	£41	3	6	By Balance	£41	3	6
	£41	3	6		£41	3	6

BALANCE SHEET as at 31st December 1945

General Fund	£623	8	4	500 National Savings Certificates at cost	£400	0	0
Publications Fund	240	10	5	Cash at Bank	267	18	11
Life Members' Fund	191	8	11	Deposit at Post Office Savings Bank	445	0	2
Miss Trower's Fund	16	7	11				
Benevolent Fund	41	3	6				
	£1112	19	1		£1112	19	1

(Signed) J. E. LOUSLEY,
Hon. Treasurer.

Examined and found correct,
January 26, 1946.

(Signed) H. W. PUGSLEY,
Hon. Auditor.

SUMMARY OF PROCEEDINGS OF MEETINGS

A meeting of the Committee was held on 26th October 1945 in the rooms of the Linnean Society of London, the Chairman and fifteen other members being present. It was agreed that the arrangements made by Mr Grose for re-starting the Exchange Section during the winter should be carried out. Mrs Foggitt reported that she had found it impossible to arrange for an autumn Conversazione on pre-war lines, and it was decided that if possible a Tea Party should be arranged to follow the next Annual General Meeting, in the Linnean Society's Rooms. A Sub-Committee was appointed to consider other ways of making the Society more efficient and more popular, and to consider the future development of the Society's activities, to which Miss M. S. Campbell and Messrs Gilmour, Lousley, Milne-Redhead, Pugsley and Wilmott were appointed. Following the acceptance of a report from Mr Lousley and Miss Vachell on the policy and prospects of holding excursions in 1946, a Sub-Committee consisting of the Misses Campbell and Vachell, Messrs Alston, Brenan, and Lousley, was appointed to deal with the matter Mr Sandwith was added to the Editorial Sub-Committee.

A meeting of the Committee was held in the same rooms on 2nd February 1946, the Chairman and fourteen other members being present. The Excursions Sub-Committee presented a programme of excursions arranged for 1946, which was accepted. The " Development " Sub-Committee submitted a Questionnaire which it had drawn up in order to obtain the views of all members, and it was decided to send this to members with the next Report. It was reported that satisfactory arrangements for the holding of a Tea Party after the Annual General Meeting had been made.

The Annual General Meeting was held on the same premises on 27th March 1946. The minutes of the last Annual General Meeting were read and confirmed, including the decision then taken concerning the constitution of the Committee, viz., " That the period from March 1939 to March 1946 be deemed to be a single year for the purpose of election to the Committee." The Reports of the Hon. Acting Secretary, Treasurer, and Editor were adopted. The alterations of Rules proposed by the Committee were adopted (with two minor amendments) as follows: —

Rule 2.i. For " and Vascular Cryptogams " read ", Vascular Cryptogams and Charophyta."

Rule 3. Add " e. In the event of an insufficient number of nominations being received by February 1st to fill the four vacancies, the Committee have power to make the necessary nominations."

Rule 4. Add: " Candidates shall be proposed and seconded by members of the Society and should indicate the nature of their botanical interests."

Rule 13. Add: " The arrangements for Abstracts, Reviews, and disposal of Publications received shall be made by the Editor, with the advice of the Publications Sub-Committee, report being made annually to the Committee."

Rule 16.a. Add: " The Committee shall meet without notice immediately after the Annual General Meeting to deal only with any matters arising therefrom which require their urgent attention."

Rule 16.d. Add: " The Chairman, Secretary, and Treasurer of the Society are *ex officio* members of all Sub-Committees, but their attendance is optional unless they hold office on the Sub-Committee."

Rule 16. Add: " e. Members of Committee or Sub-Committee who fail to attend three consecutive meetings shall cease to be members thereof unless adequate reason for non-attendance is given."

Rule 17.a. For " in March " read " in March or April."

Rule 19. Add: " at latest " before " with the notice of the Annual General Meeting."

The Chairman explained the Questionnaire which was being sent to all members with the forthcoming Report for 1943-44. The following were elected as officers of the Society: *Chairman*—The Rt. Hon. H. T. Baker; *Vice-Chairman*—Dr J. Ramsbottom; *Hon. General Secretary*—Mr J. F. G. Chapple; *Hon. Secretary to the Committee*—Mr A. J. Wilmott; *Hon. Treasurer*—Mr J. E. Lousley; *Hon. Joint Editors*—Messrs A. J. Wilmott and E. C. Wallace. Dr N. Polunin, Dr P. W. Richards, Dr R. Melville, and J. D. Grose were elected to the Committee in place of Messrs Milne-Redhead, Sandwith, Simpson, and Lt.-Col. Wolley-Dod, who retired by virtue of seniority on the Committee. A vote of thanks was passed to Mr Wilmott for his work as Hon. Acting Secretary and another to the Linnean Society of London for the continued loan of their rooms for the Society's meetings.

At a meeting of the Committee held immediately after the Annual General Meeting, Messrs E. Milne-Redhead and N. Y. Sandwith were co-opted to the Committee, and Mr H. W. Pugsley was elected to the Excursions Sub-Committee in place of Miss E. Vachell, who had ceased to be a member of the Committee as the term for which she was elected had expired.

HONORARY ACTING SECRETARY'S REPORT FOR 1945

During the past year progress has been made towards a return to normal working of the Society. Although it was not found possible to arrange a Conversazione last autumn it is hoped that the introduction of a Tea Party after the Annual General Meeting will be welcomed. Excursions have been organised for this year and the Programme of arrangements accompanies this notice. The Exchange Section has made a start this winter and it is hoped that it will encourage the study of difficult groups. It had been hoped that the Reports would have been brought up to date by last Christmas, and in spite of unavoidable delays the 1943-44 Report should soon be distributed.

To assist Post-War Reconstruction the Committee appointed a Sub-Committee "to consider other ways of making the Society more efficient and more popular, and to consider the future development of the Society's activities." Results of their work have been embodied in a Questionnaire which will be circulated as soon as possible, and it is hoped that all members will give such assistance as they can in making the Society flourishing and useful again.

A. J. Wilmott.

February 2nd, 1946.

HONORARY TREASURER'S REPORT OF FINANCE AND MEMBERSHIP, 1945

The subscriptions received during the year amounted to £143 10s 9d and this figure would certainly have been somewhat higher if it had been possible for the Report for 1943/4 which is in the hands of the printers to be issued. As no Report has been published during 1945, disbursements have been small and it must be remembered that we shall need to provide for a substantial printer's bill in 1946 when it is hoped that a report for 1945 will be issued in addition to that for 1943/4. The total amount of subscriptions paid in advance at the end of 1945 stands at £22 7s 6d.

During the year we have gained 26 new members and lost 4 so that the total is increased to 380. The new members are the Rev. M. B. Innes, Rev. Professor C. E. Raven, Commander R. D. Graham, Dr Ronald E. G. Gray, Prof. A. R. Clapham, Messrs Peter R. Bell, F. J. Bingley, E. N. Carrothers, W. D. Coales, P. J. Conder, A. J. Farmer, M. Foster, P. S. Green, John W. Harvey, John McK. Moon, C. D. Pigott, W. J. L. Sladen, E. G. Williams, D. P. Young, Mrs C. M. Cory, Mrs D. V. Harrison-Church, Mrs F. Partridge, and Mesdames L. W. Frost and D. M. Frowde. In addition two booksellers who have given standing orders are included in the total as subscribers.

We were very sorry to hear of the death of two Honorary Members during the year—Dr B. H. Danser and Dr R. Probst, and also of two Ordinary members—Miss M. Hall and Dr G. V. C. Last.

Towards the end of the year energetic steps were taken with a view to resumption of some of our normal activities which we had been compelled to drop during the war and it is gratifying to record that the Society has adequate funds in hand to meet the initial expenses of these functions which will doubtless lead to a further increase in our membership.

J. E. LOUSLEY.

December 31st, 1945.

HONORARY EDITOR'S REPORT FOR 1945

The production of the 1943-44 Report has been delayed by staff difficulties at the printers, but the Report is in print and its appearance should not be long delayed. With it volume XII will be completed, and the coincidence of Post-War development with the beginning of a new volume of Reports is a circumstance favourable to the incorporation of any improvements which may be suggested. No suggestions have yet been received in response to the appeal made in the last Report, but it is hoped that members who have suggestions to offer will do so early enough for the Editorial Sub-Committee to consider them in time for inclusion of valuable ideas in the 1945 Report, for which material is now accumulating. Every effort will be made to overcome delays in the appearance of the Annual Report, although it must be recognised that conditions are not yet normal and unexpected delays still occur.

A. J. WILMOTT.

February 2nd, 1946.

OBITUARIES

Benedict Hubert Danser (1891-1943). By the death of Professor B. H. Danser the Society has been deprived of yet another of its Honorary Members who were known to readers of our Reports as correspondents of Dr Druce. Born at Schiedam in May 1891, he became interested in botany at a very early age. The fine series of papers on *Rumex* by which he is best known to British field botanists commenced in 1917 when he was only 26 and the last to deal with the European species was published only nine years later. During this period he was responsible for a number of important discoveries including the description of *Rumex obovatus* (*N.K.A., 1920*, 241, 1921) and the separation of *Rumex trigranulivalvis* which has since been raised to specific rank by Rechinger. His field and herbarium work was supported by the experimental production of hybrids under cultivation of which he gave an account in an original style (*Genetica*, **6**, 145-220, 1924). A list of his papers on *Rumex* will be found in *B.E.C. 1938 Rep.*, 155-156, 1939. It is unfortunate for students of this group that Danser's work on the genus practically ceased before he had gained the riper judgment that comes with experience and when he wrote me in 1938 that " the best Lapathologist is not the undersigned but Dr K. H. Rechinger in Vienna " he was generously acknowledging how his early work was being rounded off by another botanist. Danser's determination of Druce's Scottish material as *Rumex arifolius* All. led to the false addition of a species to the *British Plant List* (*B.E.C. 1923 Rep.*, 58, 1924).

In 1925 he went to the Dutch Indies, becoming assistant in the Buitenzorg herbarium, and there he continued the work on *Polygonum* which he had commenced a few years before leaving Holland. His interest, however, turned more and more to *Nepenthes* and to the *Loranthaceae* on which he published numerous papers. He returned to Holland to take up a post at Groningen where he became part-time Professor until he received the full appointment as Professor in September 1943—only shortly before his death. An excellent obituary notice with a photograph and extensive bibliography has been published by Jansen and Wachter (*N.K.A.*, *53*, 129-136, 1943).

J. E. Lousley.

George Valentine Chapman Last (1875-1945). Many people will miss the cheerful personality of Dr Last, who died suddenly at the conclusion of a Liverpool Botanical Society expedition to Hilbre Island on 9th June 1945. He became a member of the B.E.C. in 1938 when he was able to return to the study of botany, a pursuit which his professional duties had caused him to lay aside since the nineties. He had a very fine herbarium, his specimens always being noteworthy for the care he took in preparing them. In recent years he had been largely instrumental in forming a representative herbarium for the Liverpool Botanical Society, of which Society he had been a vice-president for some years prior to his death. He was particularly interested in Primulaceae and Gentianaceae on which he read papers to the Liverpool Botanical Society which are reprinted in the *North Western Naturalist*. Keenly interested in ferns, he cultivated many British and exotic species in his greenhouse with great success.

Many are the botanical excursions which I, and many more, have enjoyed in his company and his passing will be regretted by all.

J. A. WHELLAN.

BROTHER MARIE-VICTORIN (1885-1944) has been one of the Society's Honorary Members since 1927. He was born Conrad Kirouac, of Breton descent, at Kingsey Falls, Quebec. At the age of 15 he entered his novitiate with the Brothers of the Christian Schools in Montreal, and later taught in one of their schools until he was called to the Université de Montreal, where he taught geometry, physics, and natural sciences at the Collège de Longueil on the opposite side of the St Lawrence from Montreal. At that time he expressed his literary abilities and poetic nature in writing folk tales in periodicals which were later collected in book form. His first botanical publication was in 1908, in which he drew attention among other things to the invasion of America by *Butomus umbellatus* which about Montreal spread in a manner similar to the invasion of Britain by *Elodea canadensis*, and for several years afterwards he published botanical notes in the *Naturaliste Canadien*. In 1920 the Université de Montreal founded its Faculty of Sciences, and he inaugurated the teaching of Botany, being appointed Professor of Botany two years later. In his hands the Institute Botanique developed and flourished, and he has told its history in no. 40 of the *Contributions de l'Inst. Bot. Univ. Montreal*. Interested in genetics, and with experience of the African and European floras as well as of that of his own country, he was able to enrich his *Flore Laurentien* (a fine work of 927 pages: 1935) with a wealth of information, and in it he was the first to give the chromosome numbers of all species for which they were known. His interest in allied institutions—Biological and Geological—extended to the Junior Clubs, the Montreal Botanical Garden, the Association Française pour l'Avancement des Sciences. All of these he helped to found. His qualities were fully expressed in the numerous excursions which he made with colleagues and friends, and on one of these he died, on the roadside near his birthplace. He was a great man whose radiant influence will be greatly missed, for he had the power of rousing and stimulating that enthusiasm which produces good work, which will live on in those who knew him. (With acknowledgment to Pierre Dansereau, in *American Midland Naturalist*, *33*, March 1945).

A. J. WILMOTT.

Professor Joseph Hubert Priestley (1883-1944) died at Leeds on October 31st, 1944, at the age of 61. He was born at Tewkesbury and was a student at University College, Bristol, before his appointment at the early age of twenty-eight as Professor of Botany at Leeds University. During the 1914-1918 war he served with distinction as a staff officer in the Intelligence Service and on his return to academic life he built up a large and very active department which attracted many research students from home and overseas. Apart from his abilities and achievements as a research worker whose interests lay mainly in problems of developmental anatomy and studies in cell and tissue differentiation he was outstanding as an administrator and teacher. He was president of Section K (Botany) at the British Association meeting at York in 1932, served for many years on the Forestry Commission, and was closely associated with and for some time chairman of the Northern Universities Joint Matriculation Board. As a lecturer he had a remarkable capacity of imparting to his students his own interest and enthusiasm for his subject.

Although Priestley's botanical work did not touch upon systematics he was always sympathetic and helpful in his attitude towards the amateur naturalist and collector. This interest in systematic work was reflected in his long membership of the B.E.C. and the active support which he gave as an executive officer to the Yorkshire Naturalists' Union, of which he was President in 1925. On the occasions when his many University and other activities allowed sufficient leisure for participation in excursions he would devote his energies with characteristic vigour and enjoyment to field work. As a man Priestley had a powerful and invigorating personality. He was greatly respected by all his colleagues and students and his death will be felt widely in University and educational circles.

W. A. Sledge.

R. Probst (1854-1940) was added to the Society's list of Honorary Members in the *Report* for 1928, in which Dr Druce thanks him for assistance in naming aliens. By profession a doctor, he was Switzerland's second oldest botanist, and was especially interested in the alien flora, as his " Adventiv-flora Europas " indicates. His " Flora des Kantons Solothurn und Umgebung " was in the press in December 1945. His natural history *relicta* are in the botanical library of the Municipal Museum of Solothurn.

A. J. Wilmott.

Andrew Templeman (1887-1945) was born on 22nd April 1887 at Aberdour in Fifeshire. For some years he worked in a merchant's office and while there attended the Heriot Watt College, Edinburgh, as an evening student, gaining the Wemyss Prize for obtaining second place in the Honours course in geology. He also attended classes at the Heriot Watt and Agricultural Colleges, Edinburgh, in botany and zoology.

From September 1914 to November 1918 he was in the Royal Scots Greys, going to France in March 1917.

In 1920 he joined the Geological Survey as an Assistant and for some years was employed as a fossil collector. After the compulsory notification of borings and shafts for minerals (Mining Industry Act of 1926) came into force he was appointed bore-inspector for the Survey and was so engaged when he met his death at Seaton, near Workington, Cumberland, on 16th December 1945 by losing his footing on a vertical ladder in a 50-ft. shaft and falling into an accumulation of carbon-dioxide. He leaves a widow (he married in 1941) and a brother in Canada.

Templeman had an extremely good knowledge of stratigraphy as well as of fossils and was a worthy disciple of William Smith, the "Father of English Geology," in whom he was keenly interested. His knowledge of field botany was extensive and varied and he had a good working knowledge of the birds and beasts of the countryside—in short, he was a born naturalist.

He was well liked by all his colleagues and he made numerous friends in his travels round the country as fossil collector, bore inspector and in his private capacity. He will be missed by all for he was a loyal friend and an industrious and reliable worker ever ready to help by placing his knowledge at the disposal of others yet withal a man of considerable reserve.

T. Eastwood.
Assistant Director, Geological Survey and Museum.

It should be added that the quality of the account of the Society's expedition to Mull (see 1939-40 Report) was largely due to Templeman's assistance.

A. J. Wilmott.

PERSONALIA

FLORA OF DORSET

Professor Ronald Good, of University College, Hull, is preparing for publication a general account of the flora of Dorset and a list of the species comprising it. He would be grateful for any botanical information relating to the county, and especially for any plant records.

H. N. DIXON'S HERBARIUM

The statement made in the last Report refers only to the mosses. His collections of flowering plants were left to L. Beeching Hall, upon whose death they passed to N. Douglas Simpson, who has given them to the British Museum (Natural History) with the exception of a few retained in his own herbarium.

NOMENCLATURE AND CORRECTIONS TO BRITISH PLANT LIST

A. J. Wilmott.

The procedure explained in the last Report has been continued. The editing has this year necessitated few entries in this section.

To avoid further corrections of the "tautonyms" (e.g. *Glaucium Glaucium*) adopted by Dr Druce contrary to the *International Rules of Botanical Nomenclature* (ed. 3, 1935: Art. 68 (3)), those not already corrected are now dealt with. For the following the valid name is that first cited (in parenthesis) in *B.P.L.*, i.e., *Glaucium flavum* Cr. for 23/1, and similarly for 56/2, with b. *lilacina* (Druce) comb. nov.; 77/1, with b. *sinuatifolia* DC.; 143/1; 228/1; 230/1; 263/1; 270/1; 273/1; 275/1 with b. *bracteata* (Druce) comb. nov.; 294/1; 400/1; 403/1; 457/1 with b. *pyramidale*; 490/2; 532/1, the authorities for varieties being those in parenthesis, and e. *peloria* to be deleted (by Art. 65) as a peloric monstrosity; 666/1; 725/1; 763/1; 815/2; 842/1; 843/2; 859/1. 856/1= *D. Linneana* C. Chr. The remainder are dealt with below or will be found corrected in the *1936 Report* (439/1, p. 225), *1937 Report* (478/1, p. 453), *1939-40 Report* (p. 313→; 87/2; 124/1; 173/1; 197/1; 334/2; 647/1, 668/2; 783/2; 802/2; 859/1), *1941-42 Report* (p. 518→; 289/1; 457/1; 532/1; 691/3), and *1943-44 Report* (p. 662→; 252/1; 380/1; 482/1; 616/1; 733/1).

Duplicated nomenclature in B.P.L. There are several instances in *B.P.L.* where Dr Druce gave two series of names for the same plants because he did not accept the rulings of the International Botanical Congress concerning *nomina conservanda*. The following are accepted (and the others should be deleted in *B.P.L.*):—10, *Eranthis*; 19, *Nuphar*; 20, *Nymphaea*; 30, *Dicentra*; 31, *Corydalis* (and the numbers 2 and 3 should be interchanged to agree with the list under *Capnoides*, for they do not belong to the names (epithets) used but to the plants for which they stand!); 35, *Nasturtium* (species 1, the rest are *Rorippa*, see *1932 Rep.*, 158); 48, *Malcolmia*; 73, *Euclidium*; 157, *Hymenocarpus*; 158, *Securigera*; 246, *Trinia*; 252, *Falcaria*; 281, *Bifora*; 399, *Silybum*; 404, *Amberboa* (not "*Amberboi*"); 433, *Wahlenbergia*; 449, *Dabeocia* (the spelling *Daboecia* is regarded as an unintentional orthographic error as the saint commemorated was St Dabeoc—cf. Art. 70); [delete 482 *Dupl.*]; 496, *Amsinckia*; 505, *Mertensia*; 511, *Calystegia*; 612, *Suaeda*; 700, *Simethis*; 719, *Luzula*; 764, *Leersia*; 767, *Hierochloë*; 768, *Crypsis*; 790, *Corynephorus*; 797, *Cynodon*.

Initial Capitals, especially of epithets ending in *-oides*. Dr Druce used an initial capital for epithets ending in *-oides* even when the original spelling used the lower case for the initial letter. This practice is not in accordance with the *International Rules of Botanical Nomenclature*. The *Rules* are now faulty owing to decisions taken at the last

International Congress (Amsterdam, 1935) where it was decided that the use of the initial capital letter for epithets was governed by a Recommendation, which decision was in itself contrary to the Rules which lay down (Art. 2) that Recommendations lack the retroactive sanction of Rules. As it was decided at that Congress that the use of the initial capital is a matter of typography and not of spelling there seems to be at present no clear Rule governing the matter, but until the position is clarified the Recommendations concerned will be applied as if they had been adopted as Rules. This rejection of certain initial capital letters also includes their misuse in such instances as 419/73 *Hieracium* "*Pseudonosmoides*." The retroactive application of these Recommendations will also affect instances when the original spelling was with an initial capital, e.g. "*Radiola Linoides*" (see *1939-1940 Rep.*, p. 313), and those from works such as Miller's *Gardeners' Dictionary*, ed. 8 (1768), in which an initial capital was used consistently for the specific epithets.

The Editorial Sub-Committee has decided that in making corrections to *B.P.L.*, subspecies shall be indicated by A, B, C,→ (as initiated by P. M. Hall), varieties being placed under them as Aa, Ab ... Ba, Bb ... Ca, Cb ... →.

36 **BARBAREA.**

3 **vulgaris** R. Br.—"*B. Barbareae* (L.) M'Mill." of *B.P.L.* is an error. Linnaeus wrote *Erysimum Barborea* and MacMillan (1892: *Metaspermae of Minnesota*, 259) wrote *Barbarea barbarea*, which is an illegitimate tautonym.

37 **ARABIS.**

1 **hirsuta** (L.) Scop.—*Turritis hirsuta* L. 1753: *Sp. Pl.*, 666.

88 **VIOLA.**

3 **Reichenbachiana** Jord. ex Bor.
  b. **punctata** (Rouy & Fouc.) comb. nov.
  c. **leucantha** (Čelak.) comb. nov.

95 **SAPONARIA.**

2(2) *oxyodonta* (Boiss.) Boiss.—see paper by Mr Brenan.

103 **SAGINA.**

7(2) **filicaulis** Jord.—This seems best treated as a species: *vice* 7b.

133 **IMPATIENS.**

2 *capensis* Meerburgh—1775: *Afb. zeldz. Gewass.*, t. 10; 1789: *Plant. Rarior.* [text: B.2 verso], t. 10; Schulze 1937: *Notizbl. B.G. Berlin. 13*, 662; B. L. Burtt 1938: *Kew Bull.*, 161-163. *I. biflora* Walt. 1788: *Fl. Carolin.* 219. Meerburgh's belief that his plant came from S. Africa was apparently erroneous, as the plant is not known there.

176 VICIA.

2 *tenuifolia.*

B *stenophylla* (Boiss.) Velen.—see *Plant Notes.* This looks like a species distinct from *V. tenuifolia*, but until the group is thoroughly revised, is retained as a subspecies in accordance with the authorities cited.—*vice* 2b.

249 *AMMI.*

2 *Visnaga* (L.) Lam.—*Daucus Visnaga* L. 1753: *Sp. Pl.*, 242.

250 CARUM.

2 **verticillatum** (L.) Koch—*Sison verticillatum* L. 1753: *Sp. Pl.*, 253.

306 DIPSACUS.

1 **fullonum** L.—1753: Sp. Pl. 97 (excl. *β sativus*). *D. sylvestris* Huds. 1762: *Fl. Angl.* 49; Mill. 1768: *Gard. Dict.* ed. 8, no. 1. The definition given by Linnaeus in 1753 is a new one: the type is in the Linnean Herbarium, and is not the "Fuller's Teasel," but *D. sylvestris.* The use of the Linnean name for *D. sativus* (L.) Honck. cannot be maintained.

3 *sativus* (L.) Honck.—1782: "*Verz. aller Gew. Teutschl.*, 374"; C. Gmel., 1805: *Fl. Bad. 1*, 314. *D. fullonum* Huds. 1762: *Fl. Angl.*, 49.

320 ERIGERON.

11 *glaucus* Ker-Gawl.—1815: in *Bot. Reg.*, t. 10. See *Plant Notes.*

334 PULICARIA.

1 **dysenterica**

d. **Hubbardii** Turrill—see *Plant Notes.*

395 CARDUUS.

3 *pycnocephalus* L.

b. *arabicus* (Jacq.) Boiss.—see paper by Mr Brenan.

405 CENTAUREA.

35 *pallescens* Del.

b. *hyalolepis* (Boiss.) Boiss.—1875: *Fl. Or.*, *3.* 691, *C. hyalolepis* Boiss., 1845: *Diagn. Pl. or.*, *Ser. 1, 6*, 133.—J. P. M. Brenan.

407(2) *PEREZIA* Lag. Amen. Nat., i, 31, 1811.

1 *multiflora* (H. & B.) Less.—see *Plant Notes.*

532 **LINARIA.**

21(2) *origanifolia* (L.) DC.—1805: *Fl. France, 3,* 591. *Antirrhinum origanifolium* L. 1753: *Sp. Pl.* 615. *Chaenorrhinum origanifolium* (L.) Willk. & Lange, 1870: *Prodr. Fl. Hisp., 2,* 579.—See *Plant Notes.*

545 **EUPHRASIA**—see *Plant Notes.*

5(2) **Heslop-Harrisoni** Pugsl.
12(5) **eurycarpa** Pugsl.
15(2) **rhumica** Pugsl.
  b. **fionchrensis** Pugsl.

558 **MENTHA.**

14 **Pulegium**
  b. **erecta** (Mill.) Martyn—*Pulegium Erectum* Mill. 1768: *Dict.,* ed 8, no. 2.

571 *LALLEMANTIA.*

2 *iberica* (M.B.) Fisch. & Mey.—*D. ibericum* M.B., 1808: *Fl. Taur.-Cauc., 2,* 64.—J. P. M. BRENAN.

613 **SALSOLA.**

3 *pestifera* A. Nels.—N. Y. Sandwith has drawn attention to the need for this orthographic correction.

614 *PHYTOLACCA.*

2 *acinosa* Roxb.—see *Plant Notes.*

618 **RUMEX.**

16(2) **tenuifolius** (Wallr.) Löve—see *Plant Notes*—*vice* 16f.

632 **ULMUS.**

2 **carpinifolia** Gleditsch.
  e. **glandulosa** (Lindl.) Melville.

651 **POPULUS.**

*6 *balsamifera* L.—1753: *Sp. Pl.,* 16, excl. syn. Catesby and Gmelin. *P. Tacamahacca* Mill. 1768: *Gard. Dict.,* ed. 8, no. 6; Sargent; Rehder; Mansfeld; etc. See Rouleau, E.; 1946: *Rhodora, 48,* 103-110.—The diagnostic reference to *Hort. Cliff.* given by Linnaeus is in fact a new definition not identical with the definition in *Hort. Cliff.*: the type must therefore be sought in *Herb. Linn.,* and according to Rouleau "it is of a short shoot consisting of six leaves with rounded bases, two of which have the base a little subcordate and asymmetrical. This type matches very easily numerous collections of *Populus balsamifera* made in Canada and the United States."

661 CORALLORHIZA Châtelain—*vice* CORALLORRHIZA Haller. Châtelain (1760: *Specimen inaugurale de Corallorhiza*) took his spelling from *Ophrys Corallorhiza* L. (1753: *Sp. Pl.*, 945), and the "better Greek spelling"—see Fernald (1946: *Rhodora*, *48*, 193-196)—of Haller (1768: *Hist. Stirp. Helv.*, *2*, 159) cannot be regarded as an orthographic correction as the original author of the name (Ruppius) and Haller himself in 1742 used the form adopted by Linnaeus and Châtelain.

669 ORCHIS.

10 **ericetorum** (Linton) E. S. Marshall.
b. **candidissima** (Weber) comb. nov.?

672 OPHRYS.

3 **apifera** Huds.
e. **Trollii** (Hegetschw. & Heer) Rchb.—1851: *Icon. Fl. Germ.*, xiii, 97, t. ccccIvii. *Vice* 672/4. *O. Trollii* Hegetschw. & Heer. It is now generally considered that this is only an uncommon though very peculiar variation of the Bee Orchis, apart from which it seems never to be found. Its characters are not completely constant, either in the length of the labellum or its unusual colouration.

718 JUNCUS.

16 *tenuis* Willd.—*J. macer* S. F. Gray. Fernald, M. L. (1945: *Rhodora*, *47*, 117-123, pl. 879) shows that Willdenow's description, and the account of the type material given by Rostkovius (1801: *De Junco*), belongs to the species so long known as *J. tenuis*. The material in *Herb. Willd.* taken as type by Mackenzie (1929: *Bull. Torr. Bot. Club*, *56*, 25; and cf. Fernald, 1930: *Journ. Bot.*, *68*, 366), which is *J. dichotomus* Ell., disagrees with the original description and cannot have been type material of *J. tenuis* Willd.

719 LUZULA.

7 **arcuata** (Wahl.) Wahl., 1824: *Fl. Suec.* [pt. i], 218. *Juncus arcuatus* Wahl., 1812: *Fl. Lapp.* [lxi] 87, t. iv, excl. *β*.

753 CAREX.

4 **vesicaria** L.
×(9) **hirta** L. = ×C. Grossii Fiek (1896)—see paper by Mr Nelmes.
12(2) **brunnea** R. Br.—see *Plant Notes.*
61(3) **muricata** L. sec. Nelmes (C. cuprina (Sandor) Nentv.)—see paper by Mr Nelmes.
70(2) **capitata** L.—1759: *Syst. Nat.*, ed. 10, *2*, 1261.

777 PHLEUM.

9 *subulatum* (Savi) Asch. & Graebn.—1899: *Syn. M.-eur.*, *2*, 154 (non Spreng. [" in herb. cap. *Zeyh.*"] ex Steud., 1841: *Nomencl.*, ed. 2, *2* (p. 12, as synonym of *Lasiochloa hispida*), p. 321 [" Spr. herb."], *nomen nudum*, and therefore not a valid earlier homonym). *Phalaris subulata* Savi, 1798. *Phal. Bellardi* Willd., 1801. *Phal. tenuis* Host, 1802. *Phal. cylindrica* DC., 1805. *Phal. sativa* Pers., 1805. *Phleum tenue* (Host) Schrad., 1806. *Phleum Bellardi* (Willd.) Willd., 1809: *Enum. berol.*, *1*, 85.

794 AVENA.

5(2). *Ludoviciana* Durieu—*vice* 5b.; see paper by Mr Brenan.

b. *glabrescens* Durieu ex Godron in G. & G.—see paper by Mr Brenan.

795 ARRHENATHERUM.

2 **precatorium** (Thuill.) P. Beauv—1812: *Agrost.*, 152. *Avena tuberosum* Gilib. (1791: *Exercit. 2*, 538), *nomen illegitimum superfluum*; *A. precatoria* Thuill. (1799: *Fl. Paris*, 58).

809 KOELERIA.

3 **britannica** (Domin) Druce—1908: *List of Brit. Plants*, 81.

b. **aristata** (Domin) Druce—1908: *l.c.*

c. **brachyphylla** (Domin) Druce—1908: *l.c.*

825(2) PUCCINELLIA.

2×6 ×**pseudoprocumbens** (Corb.) comb. nov.?—*Atropis Borreri* var. *pseudoprocumbens Corbière* (1893: *Fl. Normandie*, 653).

829 LOLIUM.

2 *temulentum*

b. *leptochaeton* A. Braun—1834: in *Flora*, 252. *L. arvense* With., 1796: *Bot. Arr. Brit. Pl.*, ed. 3, *2*, 168. *L. temulentum* var. *arvense* (With.) Bab., 1843: *Man. Brit. Bot.*, 377.

THE WEATHER OF 1945 AND ITS EFFECTS

(Adapted by permission from the Phenological Report of the Meteorological Society, with additional information supplied by Miss Lewis of the Meteorological Office and others. Mr Nelmes has undertaken to provide this section in future, and members who have interesting notes on the effects of the weather in 1946 are requested to send information to him.)

January was cold and frosty throughout, intensely so in the fourth week. February to mid May was unusually mild, with a sunny March and markedly sunny April, but there was a severe cold snap at the end of April and beginning of May, followed by a very violent thunderstorm in the south of England on the night of May 7/8th. During the rest of May to the end of August the temperature was markedly fluctuating, especially the daily maximum, but slightly above average. August was deficient in sunshine. September was very mild with no frost whatever (very unusual): severe gales occurred 21st to 24th; it was also very dull, especially in the southern half of England. March was very dry, and April also dry, but May and June had rainfall considerably above average; August was markedly dry in the north-west. In Scotland the principal differences were that March was duller and August warm, dry, and sunny as also in north-west England and the north of Ireland.

Plant response. Flowering was at first late because of the January cold, but it changed over to three weeks early during early March and in April. The cold snap then caused wide-spread though patchy damage. Continuance of warmth and earliness lasted till mid May, returning to average by the end of June. The spring was favourable to crops, roots and grass being good and grain above the average by July 1st; by August 1st wheat was just below average but barley, oats and roots had improved, and harvest was expected to be about three weeks earlier than usual.

PLANT NOTES

[In the case of direct contributions the name of the author of the note is printed in small capitals. When the note is an abstract, the author's name is followed by the reference, either in full or by date referring to the Bibliography. The abstractor is indicated as under "Abstracts from Literature."

Note to Contributors. Will those sending in Plant Notes please keep to the form adopted in the recent Reports. If the note comes from a publication, and several notes are extracted from a single paper, first set down the "reference" in the same form as is adopted in the published "References" in the Reports, i.e., author's surname, comma, initials, semicolon, date of publication, colon, title of work, (and if from a serial publication) semicolon, followed by the name (abbreviated) of the serial, the volume, and pages (first and last). The Plant Note itself starts with the *B.P.L.* number and name of the genus or species concerned. If the note concerns one vice-county only, start the note with this information as is done with Plant Records. It would be a great convenience if all notes were prepared by different contributors on slips of the same size, that preferred being 8 inches by 5 inches, the long edge to be treated as the top of the page.—ED.]

6/6. RANUNCULUS LINGUA L. In a paper on "The Norfolk Sea Floods" in 1936 (*Tr. Norf. Norw. Nat. Soc.*, it is mentioned that a number of interesting Fenland species, including *Ranunculus Lingua* L., were apparently exterminated in the Horsey-Hickling area. Thus, on July 28th, 1945, I was pleased to see a few plants of the Great Spearwort in flower by Breydon Marshes, Horsey, near *Sonchus palustris*, *Dryopteris cristata* and *Peucedanum palustre*, all of which appeared to have survived the flood very well. A local resident, Mr Creece, told me that the *R. Lingua* had not been seen by him since the flood until this year, although he was often over the ground. It seems likely, then, that all the living plants of *R. Lingua* in 1936 were killed by the salt water, but that seed survived (or was reintroduced on the feet or feathers of the numerous birds which frequent this spot) to germinate when the salt had sufficiently leached out of the soil for its growth.—F. ROSE.

31/4. CORYDALIS LUTEA (L.) DC. is recorded as an adventive new to the Swedish Flora by Gertz, O. (1944: *Bot. Not.*, 120-121).

88/8. VIOLA ODORATA L. Walters, S. M. (1945: Notes on White-flowered *Viola odorata* L. in the Bristol District; *Proc. Bristol Nat. Soc.*, *27*, 41-45) discusses the occurrence of the two white varieties var. *dumetorum* (Jord.) Rouy and Foucaud and var. *imberbis* Leighton (cf. last *Report*, 834→). Records tend to show that var. *imberbis* is abundant on the limestone hills and inland lias soils, whilst var. *dumetorum* is present in the lowland coastal area, and only a single record for it has been made on upland limestone. Taking the country as a whole the former seems to be common on upland basic soils of the south and the latter is more widely distributed on less basic soils.—[Wa.]

98/3. Lychnis alba Mill. " Studies on cytology and sex determination in polyploid forms of Melandrium album," by Westergaard, M. (1940: *Dansk. bot. Arkiv*, 10, no. 5, 1-131) is, as the title indicates, primarily an account of experimental data concerning sex determination in this species and a discussion of the findings in relation to the general problem of sex determination in both plants and animals. " The study of polyploid forms of dioecious species have [sic] contributed, by extremely important facts, to the solution of problems in the field." Polyploidy has played a great part in the evolution of many plant genera, but only a negligible one in the animal kingdom. 14 tetraploid plants (7 male and 7 female) were raised by exposing fertilised flowers to a temperature (heat) shock at the moment of the first division of the zygote. These males and females were crossed, and also crossed with diploid plants, forming triploids with " surprisingly " good pollen. The sex chromosomes are recognisable ("X" and "Y"), female diploids being 22+XX and diploid males 22+XY. The auto-tetraploids (44+XXXX and 44+XXYY) were typical female and male plants. Male tetraploids genetically XXXY had three short and one long sex chromosome, and male triploids genetically XXY had two short and one long, thus settling the argument as to whether the long or short sex chromosome was Y. The morphological features of the diploid, triploid and tetraploid plants are described in Chapter III, with two good plates showing the flowers, stamens, stigmas and seeds; there are also figures of the epidermis (and stomata) and the pollen grains. Differences are mainly quantitative and difficult to describe, the tetraploids being more vigorous and robust with bigger individual organs. The leaves are stiffer, thicker, with more conspicuous rougher hairiness and darker green colour. Their development and longevity were like that of the diploids. Measurements of 1000 pollen grains (100 from each of 10 stamens from 2 flowers) gave average sizes for diploids, triploids and tetraploids respectively as 46.3μ, 53.8μ and $57.2(\& 3)\mu$.—[Wi.] Schopfer, W.-H. (1941: Etude du photo-periodisme chez *Melandrium album* (Miller) Garcke; *Actes de la Soc. Helv. des Sci. Nat.*, 1941, 151-152). *L. alba* is generally biennial, but by modifying the light conditions of culture, plants were made to flower abundantly in the first year. Plants subjected to long day conditions (day: 17h, night: 7h.) flowered profusely in the first year, whilst of those subjected to short day conditions (day: 9h, night: 15h.) only two flowers appeared.—[Wa.]

98/3×4. LYCHNIS ALBA Mill. × L. DIOICA L. For an interesting account of this hybrid with notes on the parents, see Baker, H. G. (1945: *Naturalist*, 129-131).

98/4. LYCHNIS DIOICA L. From cytological studies D. Löve (1944: Cytogenetic studies on dioecious *Melandrium*; *Bot. Not.*, 126-213) concludes that the Red and White Campions are "different forms of the same species."

111/2. ELATINE HEXANDRA (Lap.) DC. Hjelmquist, H. (1944: *Bot. Not.*, 357-362) discusses the distribution of this species in relation to its occurrence in Småland (Sweden).

142. ACER. E. W. Jones (1945: *J. Ecol.*, *32*, 215-252) describes this genus for the *Biological Flora of the British Isles*; full accounts of *A. Pseudoplatanus* L. and *A. campestre* L. being given. The account of the history of the former in the British Isles is interesting, and it appears that the Sycamore was little planted except as an ornamental tree until near the end of the eighteenth century. The varieties of the Maple seem to be genotypical, but "there is no correlation between hairiness of fruit and any other character of fruit or leaf, except that the petioles and stems of glabrous-fruited plants are often (but not constantly) less hairy."

149/1. ULEX EUROPAEUS L. The development and building up of the shoot system, in particular that of the accessory buds required for continued growth owing to the development of branches into thorns, is described by Scott, Lorna I. (1944: *Naturalist*, 109-110).

†176/2B. VICIA TENUIFOLIA Roth subsp. STENOPHYLLA (Boiss.) Velen. 1891, *Fl. Bulg.*, 1, 163; *V. tenuifolia* subsp. *dalmatica* (Kerner) Asch. & Graebn. 1908, *Synops. 6(2)*, 936. *V. tenuifolia* Roth var. *stenophylla* Boiss. 1872, *Fl. Orient.*, *2*, 586. *V. dalmatica* Kerner 1886, *Schedae ad Fl. exsicc. Austro-Hung.*, *4(2)*, (no. 1209); Beck in Rchb. *Icones*, *22*, 197, t. 232.

33, E. Glos.; roadside leading to Coates from Cirencester-Tetbury road, early June, 1943, Miss D. Cator, det. A. J. Wilmott. A most beautiful vetch with long racemes of sparse flowers, the standard pale lavender, lower part of corolla dark purple. The colouration in the Rchb. Icon. figure cited does not agree, and the colour is there said to be intense reddish-lilac, the back of the standard blood-red; the colouration in these later volumes is, however, often inaccurate and roughly done, and otherwise the Gloucestershire plant agrees with the descriptions, and matches specimens from Dalmatia. It is, however, possible that there are several distinct plants with linear leaves allied to *V. tenuifolia*, and when the group is thoroughly revised, this determination may need revision. [Recorded from 11, S. Hants, in 1928 Rep., p. 613, as *V. t.* var. *stenophylla* Boiss.].

It was growing close to *Cotoneaster Pyracantha* (L.) Spach [*B.P.L.*, ed. 2, 196/10], but neither was seen in anyone's garden in the neighbourhood, and the source of either remains doubtful. A. J. WILMOTT.

183/6. PRUNUS INSITITIA L. Weimarck, A. H. (1943: *Bot. Not.*, 389-398) gives details of the sizes of pollen grains and stomatal guard-cells in this species and *P. spinosa* L. Numerous localities in Sweden and Denmark are given for the hybrid between the two species, which is widespread. The difference between the two species are tabulated as

P. insititia (2n = 48).	*P. spinosa* (2n = 32).
Tree or shrub, little spiny when old, branches spreading at an acute (generally less than 60°) angle.	Shrub, generally strongly spinose, branches spreading ± at right angles.
Flower buds (up till and during the reduction division—while they are still hard and firm) ovate, acute, c. 4 mm. long.	Flower buds (at the time mentioned) spherical, without a point, c. 2 mm. diam.
The part of the bud-scale free in winter brown, the rest grey-yellow. Scales solid, parchment-like. Buds usually 2-flowered.	The part of the bud-scale free in winter brown, the rest red. Scales thin, membranous. Bud usually 1-flowered.
Anthers yellow—yellowish-white.	Anthers brown-yellow—red-brown.
Pollen grains (36-) 40.0-48.7 (-53) μ diam.	Pollen grains (29-) 33.5-37.3 (-42) μ diam.
Stoma guard-cells (21-) 23.5-24.4 (-28) μ long.	Stoma guard-cells (18-) 20.6-21.7 (-25) μ long.

189/4. POTENTILLA ARGENTEA L. Cytological studies by A. & G. Müntzing (1941: *Bot. Not.*, 237-278) show that in Scandinavia there occur, in addition to the normal diploid (2n = 14), hexaploids (2n = 42—frequent), tetraploids (2n = 28—uncommon) and a pentaploid (2n = 35—rare). The 53 strains examined were all different but remained uniform by apomixis. The hexaploids = *P. impolita* Wahlenb. Some non-Scandinavian diploid biotypes were partially sexual strains, and an almost completely sexual diploid strain was obtained and used to produce various hybrids (some with *P. opaca*). The results of crossing a Swiss partially sexual strain (var. *calabra* Ser.) and apomict diploid and hexaploid strains are set out by Müntzing, A. & G. (1945: *Bot. Not.*, 49-71). Progenies were raised from hybrids thus obtained, showing a wide range of variation, both in morphology and in chromosome number.

190. ALCHEMILLA VULGARIS L. Turesson, G. (1943: *Bot. Not.*, 413-427) describes "Variation in the apomictic microspecies of *Alchemilla vulgaris* L." Eighteen microspecies have been cultivated. Specimens were allowed to grow large enough to be divided into 10 clones, on which the effects of diverse conditions of growth could be studied. Families were also grown from seed. Some microspecies are variable, others more constant. It is evident that these apomict microspecies are not as fixed and constant as is generally supposed.

194. Rosa. "Meiosis in some *Rosa*-hybrids" is a contribution to the "*Rosa canina*-problem" by Gustafsson, A., & Håkansson, A. (1942: *Bot. Not.*, 331-343).

209/4. Tillaea aquatica L. This species has now disappeared from its only known station in the British Isles (64, M.W.York; Adel Dam). Its rapid spread after its discovery in 1921 suggested that it was a recent arrival: its subsequent decline and, now, its disappearance, confirm that view. See Sledge, W. A. (1945: *Naturalist*, 149).

214/1. Hippuris vulgaris L. Priestley, J. H., and Scott, Lorna I. (1945: *Naturalist*, No. 812, 15-17) under the heading *Notes from a Botanical Laboratory*, contrast the shoot apex with the apices of the other dicotyledons.—[Wa.]

266/1. Aethusa Cynapium L. Cultures of this polymorphic species indicate that the modifications are due to conditions of growth; Wermarck, H. (1945: *Bot. Not.*, 351-380).

308/1.—Scabiosa Columbaria L. For a map of the distribution of this species in Scandinavia and northern Denmark see *Bot. Not.*, 1945, p. 29.

318/19. Aster Tripolium L.—*Growth in non-saline habitat.* A large bushy plant, over 7 ft. high and flowering freely, was found in August 1941 on a mud embankment round a riverside bungalow garden on the banks of the R. Yare, at Surlingham, Norfolk. The embankment had been made two years previously from saline dredgings from the estuary at Breydon Water, and the plant had almost certainly arisen from seed carried from Breydon with the mud. The development of the *Aster* plant far beyond the size usually attained in its normal saline habitats could presumably be correlated with a considerable reduction in the salinity of the mud of the bank by progressive leaching by rainfall and winter floods J. M. Lambert.

†320/11. **Erigeron glaucus** Ker-Gawl. in *Bot. Reg.*, t. *10* (1815). 11, S. Hants; established on cliffs at Bournemouth, 1942, Mrs C. I. Sandwith. Native of cliffs, etc., on the Pacific coast of N. America and known as "Beach Aster." Well known in cultivation. Plant up to 10 in. high, with a spathulate-obovate basal tuft of glaucescent leaves on a fleshy root crown; heads up to 1½ in. diam., with very attractive light lavender-blue rays. Det. N. Y. Sandwith.

334/1d. Pulicaria dysenterica (L.) Bernh. var. **Hubbardii** Turrill, W. B. (1945: *Naturalist*, 51-52) differs in its green (not tomentose) minutely glandular-puberulent stems and leaves, with (especially the leaves) sessile glands, and leaf margins strongly undulate. Collected on the bank of the R. Cherwell at Islip (v.-c. 23), 1943, by C. E. Hubbard.

354. GALINSOGA. Hodgman, M. G. (1945: A Weed of the Future; *Gard. Chron.*, *117*, 7) discusses the occurrence of *G. parviflora* Cav. and *G. quadriradiata* var. *hispida* (DC.) Thell. in Britain. He refers to the latter as growing abundantly at Shiplake and at Henley, Oxfordshire. A case of acute rash on the hands of an allotment holder was attributed to it, but no further cases have been reported.—[Wa.]

354/2b. GALINSOGA QUADRIRADIATA Ruiz. & Pav. var. HISPIDA (DC.) Thell. One slight correction is necessary in my paper on this plant in *B.E.C. 1938 Rep.*, 93-4, 1939. The forma *Vargasiana* of var. *hispida* was attributed to " (Thell.) Mosseray," but Mosseray, in *Bull. du Jard. Bot. de l'Etat, Bruxelles, 14*, fasc. 3, 326, 1937, although he proposed that the combination of forma *Vargasiana* under var. *hispida* might be made, did not actually make it. What he wrote is as follows: " S'il y a lieu de maintenir deux variétés, il paraît plus naturel d'accorder plus d'importance à la forme des écailles qu'à leurs dimensions . . . . Cette façon de voir supprimerait l'ambiguïté de la f. *Vargasiana*, qui serait subordonnée à la var. *hispida* . . . ." Thus the combination attributed to Mosseray was in fact a new one, and the correct citation of the forma will be: *Galinsoga quadriradiata* var. *hispida* f. *Vargasiana* (Thell.) Brenan [*errore* " Mosseray "] in *B.E.C. 1938 Rep.*, 94, 1939 (*G. quadriradiata* var. *quadriradiata* f. *Vargasiana* Thell.).—J. P. M. BRENAN.

379/1. TUSSILAGO FARFARA L. Richard Morse (1945: A Coltsfoot Problem; *Nature*, *155*, 370-371) discusses the apparently erroneous statement in British botanical works, that the flowers droop before flowering. —[Wa.]

380/1. PETASITES HYBRIDUS (L.) G.M. & S. emend. Fritsch. A new form with few (6-8) female flowers and many (22-34) sterile hermaphrodite ones is described from Sweden (Skåne) by Ilien, G. (1941: *Bot. Not.*, 223-225: *P. ovatus* f. *ambigua*). The distribution of this species in Skåne (Sweden) is described in great detail (with map and many diagrams) by Ilien, G. (1945: *Bot. Not.*, 181-303).

383/1. SENECIO SARRACENICUS L. A. A. Dallman (1945: *N.W. Nat.*, *19*, 304-5) states that this species appears to produce no fertile fruit in Denbighshire and Cheshire and therefore questions its indigeneity there. He enquires whether fertile seed is produced in Somerset, where E. S. Marshall thought it could be regarded as native. [He states that Linnaeus only used one *r* in the specific epithet; this was so in the second edition of the *Species Plantarum*, but the first edition has two *r*'s.—ED.]

383/7. SENECIO SQUALIDUS L. Deacon, G. E. (1943: *Trans. Norf. Norw. Nat. Soc.*, *15*, 424-425) gives a brief note on the early history of this species in Norfolk.—[L.]

383/32. SENECIO INTEGRIFOLIUS (L.) Clairv. The distribution of this species in Skåne and north-west Europe is given (with maps) by Andersson, O. (1944: *Bot. Not.*, 444-458).

396/6. CIRSIUM TUBEROSUM (L.) All. Quirk, Canon R. (1944: *Wilts. Arch. and N.H. Mag.*, *50*, 480) describes the Wiltshire tuberous thistle. A plate illustrates the root system and basal leaf, and the leaves of *C. acaule* and the hybrid *acaule* × *tuberosum*.—[Wa.]

†407(2)/1. **Perezia multiflora** (H. & B.) Less. 1836: *Linnaea*, *5*, 19. *Chaetanthera multiflora* Humb. & Bonpl., *Pl. aeq.*, *2*, 168, t. 135. 11, S. Hants; Southampton Docks, June 1941, Mrs Phelps, det. W. R. Philipson. In " A monograph of the genus Perezia, section Acourtia, with a provisional key to the section *Euperezia*," R. Bacigalupi (1931: *Contrib. Gray Herb.*, *97*) states (p. 10) that the two sections of the genus are separated, geographically as well as taxonomically. The section *Acourtia* range from southern California to El Salvador and eastwards to central Texas, and are for the most part restricted to middle forest, high slopes and high plateau in Mexico. *P. multiflora* belongs to the section *Euperezia* which is restricted to the middle and higher slopes of the Andes from south Colombia (1300 miles south of the southern limit of section *Acourtia*) through Ecuador, Peru, Bolivia and Chile to Tierra del Fuego and the Falkland Is. Most species of the genus are restricted in range, some extremely local. *P. multiflora* is comparatively widely spread, but how it reached Southampton is difficult to guess.—A. J. WILMOTT.

It is an erect almost simple-stemmed annual 12-18 inches high, ending in a short corymbose panicle of capitula with bright blue flowers. The leaves are lanceolate, somewhat ovate and sometimes subcordate at the base, deeply spinose-dentate. Outer phyllaries lanceolate tapering to a short spiny prolongation of the midrib. The plant is densely and shortly glandular- and subtomentose-pubescent.

Perezia is one of the larger genera of the tribe *Mutisieae*, not previously recorded in the British Isles. The tribe is preponderantly American, occurring mainly on high tropical mountains or more temperate plains of South America. Some inhabit central and southern Africa, and fewer southern and eastern Asia. Mr W. R. Philipson informs me that the *Mutisieae* are related to the *Cynaroideae* but lack the articulated style and rigid receptacle setae of that tribe. Their most distinctive feature is in the corolla, which is usually two-lobed, a character almost unknown in the remainder of the family.

416/5. CREPIS CAPILLARIS (L.) Wallr., var. Flowers creamy-white, the outer tipped with pink. 6, N. Som.; E. Clevedon, Miss Todd (C. I. Sandwith, 1945: 16).

423. TARAXACUM. Variations in pollen-tube development are described by Katz, E. J. (1943: *Bot. Gaz.*, *104*, 650): one tube tends to surpass the others in length.

427/1. SONCHUS PALUSTRIS L. Ellis, E. A. (1944: *Tr. Norf. Norw. Nat. Soc.*, *16*, 77-78) gives details of the present status of this plant in the river valleys of East Norfolk and Lothingland.—[L.]

445. CALLUNA. "A Monograph on the Scotch Heather" by Beyerinck, W. (1940: *Verh. K. Nederl. Akad. Wedensch.*, afd. naturk. Tweede Sectie, *38*, no. 4, pp. 180, pls. 29).

460/2. PRIMULA VULGARIS Huds. Good (1944: *Nat.*, 41-46) gives an account with maps of the distribution of the Primrose in Dorset. Correlation between plant and soil is close, but is modified by rainfall. "On the heavier, wetter soils, of which the clays are chief, the plant tends to occur abundantly irrespective of rainfall, but where the rainfall is high other soils also become exploited . . . . where the soils are well drained and the rainfall average or low, as on the sands and most of the chalk, the plant is relatively absent, and occurs only in some woods where local conditions are particularly favourable for it."—[Wa.]

474/2. BUDDLEIA DAVIDI Franchet. Shove, R. F. (1945: *School Nature Study*, *40*, 40-42) gives a short account, with a plate, of this species under the name *Buddleia variabilis* and deals with its occurrence on bombed sites, on walls and between paving stones, with its history, cultivation, shoot characters, floral structure and the germination of the seeds.—[Wa.]

513/1. CONVOLVULUS ARVENSIS L. Frazier, J. C. (1943: *Bot. Gaz.*, *104*, 417-425) discusses the nature and rate of development of the root system of this species. In one growing season many vertical roots had extended 14-16 feet deep, and one was traced to a depth of 23 feet.

532/21(2). **Linaria origanifolia** (L.) DC. A glandular-pubescent biennial or perennial branched from the base with decumbent ascending stems 8-15 (25) cm. long; lower leaves close set, opposite, oval, attenuate below, rather fleshy; flowers in a lax leafy raceme, peduncles descending often longer than their subtending leaves, calyx glandular pilose, corolla purplish-blue (8-15 mm. long) with open throat, spur conical obtuse, capsule shorter than the calyx, seeds ovoid with almost smooth sides. [A. J. WILMOTT.] 16, W. Kent; still frequent on several old walls at W. Malling, 1943.—Reputed introduced by the monks of Malling Abbey; it was first collected by Shrivell (sp. in Herb. Pharmaceutical Society) and recorded by Hanbury and Marshall (1899: *Fl. Kent*, 258).—F. ROSE, identification confirmed by A. J. WILMOTT, 541/1. DIGITALIS PURPUREA L. The development of the ovule is described by Berkeley, C. J. A. (1945: *J.L.S.*, *53*, 71-82). The species is probably a polyploid (2n = 56; x in *Digitalis* = 7).

543/17(2). VERONICA PRAECOX All. This has been found in the Baltic island of Öland—(1944: *Bot. Not.*, 459).

545. EUPHRASIA. Pugsley, H. W. (1945: *Naturalist*, No. 815, 11) contributes some further notes on Eyebrights collected on Rhum.—[S.]

545/5(2). **Euphrasia Heslop-Harrisoni** Pugsley (1945: *Naturalist*, 43-44) " seems best placed among the *Nemorosae* and can hardly be mistaken for any other British members of the group." Its salient features are flexuous habit, basal branching, shallowly toothed more or less obtuse not aristate leaves, short calyx teeth, very small corolla, and long narrow capsules with rounded apex. Collected in Rhum, 1943, by J. W. H. Harrison.

545/12(5). **Euphrasia eurycarpa** Pugsley (1945: *Naturalist*. 42-43) is closely allied to *E. frigida* Pugsl., but differs in its low, flexuous, unbranched habit, broad coarsely hirsute foliage, very small villous corollas and extremely broad emarginate capsules. Collected in Rhum, 1943, by J. W. H. Harrison.

545/15(2). **Euphrasia rhumica** Pugsley (1945: *Naturalist*, 41-42). This is near *E. micrantha* Rchb. and *E. scotica* Wettst., but has a very slender flexuous habit, narrow, obtuse, bristly leaves with narrow but obtuse teeth, very small corolla with lips usually subequal, and small but not narrow capsules. Collected in Rhum, 1943, by J. W. H. Harrison.

545/15(2)b. EUPHRASIA RHUMICA Pugsley var. **fionchrensis** Pugsley (1945: *Naturalist*, 42) differs by its usually unbranched stem, relatively much shorter internodes, larger corollas and larger fruits, etc. Collected in Rhum (Fionchra), 1943, by J. W. H. Harrison.

550/10. OROBANCHE MINOR Sm. Malins Smith, A. (1945: *Naturalist*, No. 815, 13-15) has had this species under observation for nine years at Shipley, Yorks, and contributes notes on its spread vegetatively and by seed.—[S.]

558. MENTHA. Cytological investigations by Swanson, C. P., & Nelson, R. (1942: *Bot. Gaz.*, *104*, 273-280) show abnormalities concerning the spindle in cell-division which are dependent on the action of a gene transmitted by *M. spicata* to all its offspring, which induces an instability which is subject to environmental differences.

558/10. MENTHA GENTILIS L. A most interesting and complex quantity of this mint found in 1943 is to be seen in many places between Onich and the Ballachulish Ferry, v.-c. 97. I made twelve different gatherings, and much of the material showed strong affinities to ×*M. verticillata* in having the pedicels and tubes of the calyces hairy, exserted stamens, and large corollae, but in general appearance resembling *M. gentilis.* Contrarily some of the specimens would without a doubt have been taken for a normal ×*M. verticillata* if it had not been for their having *glabrous* pedicels and glabrons-glandular calyx tubes. The whole series presented a puzzle for identification, and I packed them off to Mr Still suggesting a hybrid of *M. gentilis* and ×*M. verticillata.* Mr Still's reply—the last I was to receive from him—agreed that such a hybrid was " possible but unlikely," and he considered all the material to be " aberrant *gentilis,*" basing his opinion on the hairs of the calyx teeth being " definitely of *gentilis* type " and the bays between the teeth being " quite unlike *verticillata.*" Mr Still had a wide and comprehensive knowledge of *M. gentilis,* and I have accepted his opinion unreservedly, though I should be interested to hear if other such puzzling plants of the *gentilis* group have been noticed elsewhere. R. GRAHAM.

566. SALVIA. Some abnormal plants of *S. Verbenaca* and *S. pratensis* are described by Coult, D. A. (1945: *J.L.S.*, *53*, 109-122), which show deviation from the decussate arrangement of leaf insertion, bifid leaves and bracts, and peloric flowers (with eight nutlets). Possible theoretical explanations are discussed.

573/1. PRUNELLA VULGARIS L. Böcher, T. W. (1940: Introductory studies on variation and life-forms in *Prunella vulgaris* L.; *Dansk. Bot. Arkiv.*, *10*, no. 3, 1-15) describes results of cultivating strains from Canada and various parts of Europe. The Canadian plant, from Toronto, was the N. American var. *lanceolata* Fern., but the European material shows considerable constant differences in development and even in life-form, that from Coimbra (Portugal) being an erect annual (therophyte). One from Denmark was a biennial, the remainder being perennials (hemicryptophytes), some of which flower during the first summer but others only during the second and showing differences in their capacity for vegetative development. It appears that this variable species includes a considerable number of ecotypes. No evidence of polyploidy was found : n = 16 in *P. vulgaris*, *P. laciniata* and *P. grandiflora.*

573/1. PRUNELLA VULGARIS L., forma. An astonishing specimen of this species was found in 1943 growing in shady, damp ground at Glenborrodale Castle, Ardnamurchan, v.-c. 97, in company with normal *Prunella* and *Ajuga reptans* L. At first sight it appeared to be a hybrid of the two. This, however, is most unlikely and in absence of more exact knowledge the plant is best considered as a freak form of *Prunella.* Nearly 18 in. tall, the plant was almost glabrous except for densely hairy pedicels. The inflorescence consisted of 16 verticils, of which the upper 11 were closely set to form a terminal spike 2½ in. long, and the lower 5 at distances on the stem up to 5½ in. apart. The bract-leaves were en tire, unstalked, those in the terminal spike gradually diminishing in length and acute; while the lower ones were up to 3 in. long, 1½ in. wide, strongly reflexed, and obtuse. A barren shoot from the same rootstock bore acute leaves with long stalks. The most outstanding characters were the terminal spike, and the unstalked and reflexed bract-leaves, which in shape strongly resembled those of *Ajuga*. Calyces and corollae were typical of *Prunella*. R. GRAHAM.

577/4. ×STACHYS AMBIGUA Sm. E. S. Edees (1945: *N.W. Nat.*, *19*, 275) states that two forms intermediate between *S. palustris* and *S. sylvatica* occur in Staffordshire. One, with pale flowers, narrow crenate-serrate leaves and general habit of *S. palustris*, grows by river-sides and in damp shady places where *S. palustris* is often found. The other, which resembles *S. sylvatica* much more than *S. palustris*, is a taller more robust plant with larger more richly coloured flowers and more sharply-pointed leaves; it grows on and near waste ground far from *S. palustris* and "if really of hybrid origin it is not evident that *S. palustris* is one of the parents." [Fuller descriptions are required for comparison with plants from other parts of the country.—ED.]

587/2. AJUGA PYRAMIDALIS L. has been found in Iceland (Löve; 1941: *Bot. Not.*, 235-6).

588/10. PLANTAGO MAJOR L. An abnormal plant with branched inflorescence is described by Levring, T. (1941: *Bot. Not.*, 130-131).

600/8k. CHENOPODIUM ALBUM L. var. VIRIDE (L.). Aellen (1941: Zur Nomenklatur und Kenntnis von *Chenopodium ficifolium* Smith resp. *serotinum* L. und *Chenopodium viride* L.; *Actes de la Soc. Helv. des Sci. Nat.*, 1941, 158-159) considers *C. viride* L. to be a good species, widely distributed throughout the northern European and the northern Asiatic lowlands and differing from *C. album* L. in the more obscure reticulate sculpturing of the seed testa.—[Wa.]

600/12. CHENOPODIUM FICIFOLIUM Sm. Aellen (1941) confirms the use of this name. He considers *C. serotinum* L. to be a form of *C. album* L. and the name *C. serotinum* L. em. Huds. inadmissible.—[Wa.]

614/2. **Phytolacca acinosa** Roxb., [*Hort. bengal.* 35 (1814), *nomen nudum*;] *Fl. Ind. 2*, 458 (1832); H. Walt. in Engler, *Pflanzenr. 4* (*83*), 41 (1909). Native of China and Japan; cultivated and naturalised in India. "Distinguished from other species recorded from Britain by the carpels being completely free at the flowering stage, not more or less connate." Frequently cultivated in Britain, e.g. Ham House, Surrey, 1938, coll. E. C. Wallace (Herb. Kew.), N. Y. SANDWITH. 9, Dorset; growing wild in a covert, Compton Hawy, Shenborne, 1944, J. B. H. Gooden (1945: *The Field*, *185*, 554).—[Wa.]

615. POLYGONUM L. Simmonds, N. W. (1945: Biological Flora of the British Isles; *J. Ecol.*, *33*, 117-143) gives an ecological and biological account of *P. Persicaria* L., *P. lapathifolium* L. and *P. nodosum* Pers. ("*petecticale*"). It is stated that some, at least, of the great variability of the first and last is due to plasticity.—[Wa.]

618. RUMEX. An account of " The Docks and Sorrels of the London Area " is given by Lousley, J. E. (1945: *London Nat. for 1944*, 3-8).

618/16(2). **Rumex tenuifolius** (Wallr.) Löve. *R. Acetosella* var. *tenuifolius* Wallr. is described by Löve, A. (1941: *Bot. Not.*, 99-101) as a new species " *R. tenuifolius* (Wallr.) Löve." [Wi.—It should be pointed out that this form of citation indicates " comb. nov." (with a Wallroth type), and not a " spec. nova " (*R. tenuifolius* Löve, with a new type): the form of the description is that of a new species.] In the next part of *Bot. Not.* (pp. 155-) Löve distinguishes four species of subgenus *Acetosella*, viz. *R. angiocarpus* Murb. (n = 7), *R. tenuifolius* (Wallr.) Löve (n = 14), *R. Acetosella* L. (n = 21) and *R. graminifolius* Lamb (n = 28). The distribution maps given (p. 165) indicate *R. angiocarpus* throughout Ireland and south of a line from Carnarvon to Surrey, and *R. Acetosella* and *R. tenuifolius* throughout but limited to the rest of Britain: [can scarcely be correct!—ED.].

626/1. VISCUM ALBUM L. The occurrence of this species in Skåne, Sweden, is described by Gertz, O. (1944: *Bot. Not.*, 270-280).

628/10. EUPHORBIA ESULA L. A review of the adventitious weeds in North America allied to this species is given by Croizat, L. (1945: *Amer. Midl. Nat.*, *33*, 231-243): the majority of the plants are thought to be *E. intercedens* Podpera. The legitimacy of the name *E. virgata* W. & K., 1805, at least *pro tempore*, is affirmed against the previous publication of *E. virgata* Desf., 1804. Detailed notes are given of *E. Esula* L., *E. intercedens* Podp., *E. uralensis* Fisch. ex Link, *E. agraria* M.B., *E. lucida* W. & K., *E. Cyparissias* L., *E. hebecarpa* Boiss. and *E. salicifolia* Hort.—[Wa.]

633/2. ULMUS CARPINIFOLIA Gleditsch. Melville, R. (1945: *J.L.S.*, *53*, 83-90) discusses " Typification and Variation in the Smooth-Leaved Elm, *Ulmus carpinifolia* Gleditsch." The name was traced by Rehder to Gleditsch, 1773: *Pflanzenverzeichniss*, 354 (and cf. *Ulmus carpini folio* Gleditsch, 1775: *Syst. Einleit. Forstwiss.*, *1*, 240). No type material could be found, but reasons are given for taking Jena to be the type area. A specimen in the Schleiden Herbarium collected wild in a small wood (which cannot now be located) at Gross-Lobichau, cited in Bogenhard's *Flora of Jena* (1850: 333 as *U. campestris* L.), is chosen as neotype of *U. carpinifolia*, and an amplified description, based on it and Essex material, is given. The following varietal names constitute *combb. nov.*, and descriptions of these varieties are given:—

e. **glandulosa** (Lindley) Melville—*U. glabra* var. *glandulosa* Lindley (1829: Syn. Brit. Fl., 226).

[f. *Horsholmii* (Hort.) Melville—*U. campestris* var. *Horsholmii* Hort.]

[g. *suberosa* (Moench) Rehder—1938: *J. Arnold Arbor.*, 19, 266].

645/1. CORYLUS AVELLANA L. The growth of the Hazel is normally sympodial, each season's new stem growth coming from the top lateral bud of the previous year's growth. R. Gurney (1945: *N.W. Nat.*, *20*, 27-29) describes and illustrates growth from abnormal apical buds occurring on stool shoots, and possibly connected with the extra vigour shown by such shoots. " Sometimes all the shoots on one stool have the same structure; but usually only a proportion of them, and many stools have none with apical buds." The locality where the observations were made is not stated.

649/1. FAGUS SILVATICA L. A single tree from Skåne (Sweden) with peculiar oblong-lanceolate leaves is described by Gertz, O. (1942: *Bot. Not.*, 75-83: f. *osbyensis* Gertz).

652/2. EMPETRUM HERMAPHRODITICUM (Lange) Hagerup. In the discussion of his paper on *Melandrium album* (q.v.) Westergaard (p. 121) expresses the opinion that this is not a direct autopolyploid of *E. nigrum* L.

667/1×3. CEPHALANTHERA. A hybrid between *C. longifolia* (L.) Fritsch and *C. rubra* (L.) Rich. is described from Gotland by Petterson, B. (1941: *Bot. Not.*, 114-122).

669. ORCHIS L. Stephenson, T. (1945: British Marsh and Spotted Orchids; *Trans. Torquay N.H. Soc.*, *9*, 61-65) in a short account of the British dactylorchids, gives the chief characters by which they may be identified.—[Wa.]

676/3. IRIS SPURIA L. Bradley, C. R. Sylvester (1943: *Proc. Dorset. N.H. and Arch. Soc.*, *64*, 118-120) contributes " some notes on the occurrence of *Iris spuria* in Dorset " where it appears to have been growing for over half a century. He considers that the occurrence of this Iris both in Lincolnshire and Dorset is not the result of a garden escape or other accidental introduction; but that it is a rare but true native of Britain. See *B.E.C. 1941-42 Rep.*, 505 (1944).—[Wa.]

93. AMARYLLIDACEAE. Scott, Lorna I. (1944: " Bulbs of the Amaryllidaceae "; *Naturalist*, 49-52) discusses the bulbs of *Narcissus*, *Golanthus* and *Leucojum* and considers that they are sympodial as in Liliaceae and not monopodial as is generally believed.—[Wa.]

691. POLYGONATUM. Ownbey, Ruth Peck (1944: The Liliaceous genus *Polygonatum* in North America; *Ann. Miss. Bot. Gard.*, *31*, 373-413) gives the history of the genus and an account of the morphology, cytology and taxonomy of the North American species.—[Wa.]

691/2. POLYGONATUM MULTIFLORUM (L.) All. Clapham, A. R. (1945: *New. Phytol.*, *44*, 105-109) finds that the factor determining the direction of growth of the new segment of rhizome appears to be the intensity of light reaching some part of the rhizome and not, as Raunkiaer thought, the length of the darkened part of the erect shoot.

694/1. CONVALLARIA MAJALIS L. The development of the embryo-sac is described by Stenar, H. (1941: *Bot. Not.*, 123-128).

718/3. JUNCUS CONGLOMERATUS L. E. S. Edees (1945: *N.W. Nat.*, *19*, 275-277) states that in Staffordshire *J. effusus* is the abundant species, with which *J. conglomeratus* occurs " as small islands in a sea " of the former. Compact forms of *J. effusus* are often abundant on the moors, and six points of difference are discussed: —

Colour: inflorescence usually a richer brown (in *J. effusus* typically olive-green, but intermediate colours occur and this character alone is " not a safe guide ");

Anthers: said to be linear, longer (in *J. effusus* oval and short), but " the distinction, though present, is not marked enough to be obvious ";

Capsule: Babington's description—" the mucro in the hollowed top of the capsules resembles a little hill bearing the style "—is said to be exactly right: in *J. effusus* " there is never a hill ";

Panicle: variable in both species, but tighter (about half-an-inch in diameter) in *J. conglomeratus*;

Sheath: inflated (never so in *J. effusus*); the stem above the inflation is weakened and soon bends over, withering more early than in *J. effusus*; the lip of the inflated sheath is usually (not always) rimmed with red and there is often a ring of red round the stem at the base of the panicle;

Stem: more deeply grooved and slightly rough, so that " when revolved between thumb and forefinger " it feels " like a finely-toothed cog-wheel " (living stems of *J. effusus* are quite smooth to the touch): when dried, however, this difference, " so marked in the living plants, is greatly narrowed and sometimes almost obliterated."

The characters of the capsule, sheath, and stem are considered the most important for easy recognition.

[I found this year that the abundant plant in Uig, Lewis, was the compact form of *J. effusus* and not *J. conglomeratus* (cf. M. S. Campbell; 1945: *Fl. Uig*, *17*, pl. iii & iv): *J. conglomeratus* was frequent and typical *J. effusus* rare.—A. J. WILMOTT.]

719/1. LUZULA SILVATICA (Huds.) Gaud. The occurrence of this species in Sweden is detailed by Hylander, N. (1941: *Bot. Not.*, 107-113): in two of the three known localities only a single (long-lived!) tuft is known and in all three *L. luzuloides* (*L. nemorosa*) occurred also.

741/2. NAIAS FLEXILIS (Willd.) Rostk. & Schmidt. The recent and (wider) fossil distributions of this species in Sweden are detailed (with a map) by Sandegren, R. (1941: *Bot. Not.*, 59-64.)

746/9. SCIRPUS NANUS Sprengel. Gilly, Charles Louis (1944: Notes on Geographical Distribution, I—*Eleocharis parvula* (R. & S.) Link; *Amer. Midland Nat.*, *31*, 499-500) summarises the distribution of this species in North America. A primary distributional area following the North Atlantic arc pattern is recognised, the exact western limits in North America are not yet known. Other occurrences in North America are attributed to migratory birds or to the dumping of ballast. —[Wa.].

753. CAREX L. Harrison, J. W. H. (1945: *Trans. B.S. Edinb.*, *34*, 270-277) discusses " Noteworthy sedges from the Inner and Outer Hebrides, with an account of two species new to the British Isles " [*C. capitata* L. and *C. glacialis* Mackenzie], and of *C. brunnea* R. Br. var. *minor* Booth introduced in Rhum.

753/12(2). CAREX BRUNNEA R. Br. This is recorded (the var. *minor* Booth) by J. W. H. Harrison (1945: *T.B.S. Edin.*, *34*, 276) as introduced (with bamboos?) in Rhum, " flourishing in the Kinloch grounds." It is placed by Kükenthal (1909: *Pflanzenreich*, *4* (*20*) (Heft 38), 599, in subsect. *Graciles* of sect. *Hymenochlaenae* which includes the British species *C. strigosa* Huds. (subsect. *Gracillimae*) and *C. capillaris* L. (subsect. *Capillares*). Most species of the subsection are native of China, Japan, India and Pacific Islands. The subsection is distinguished by its remote peduncled (usually lax-flowered, at least at the base) spikes, two stigmas, and plane-convex utricles with (mostly) long bidentate beaks.

C. brunnea is a caespitose plant with woody rhizome. Stems 30-90 cm., slender, triquetrous, rough at the top, with dark brown sheaths at the base. Leaves longer or shorter than the culm, rigid, 2-3 mm. wide, flat, rough on both sides. Spikelets rather numerous, androgynous, 2-3 cm. long, rather dense flowered, *2-5 from each sheath* on long capillary peduncles. Lower bracts leafy and long sheathing, upper short and setaceous. Female glumes oblong ovate subacuminate shorter than the utricles, reddish-brown multistriate with green keel. Utricles membranous oval 3-4 mm. long, hispid or ultimately glabrescent, both sides many veined, base cuneate, abruptly contracted above into longish or long rough edged bidentate beak. Nut oval. filling the utricle. Widespread from Bourbon and Mauritius through India to China, Korea, Japan, the Philippines and Australia. The var. *minor* from Bourbon has the spikes dense and the beak of the utricle short.

753/59(2). Carex vulpina L. An account of this species and of its discovery in Yorkshire, is given by Taylor, J. M., & Rowlands, S. F. (1945: *Naturalist*, 131-132).

753/70(2). Carex capitata L. Recorded by J. W. H. Harrison (1945: *T.S.B. Edin.*, *34*, 270-1) from 110, O. Hebr.; S. Uist, "a tuft on a bare stretch of soil lying at the head of two parallel slopes not far from the sea in the Truirebheinn area, north of Loch Boisdale." It belongs to Fries's *Monostachyae*, which have culms bearing a single terminal spikelet, which in this species is small and ovate (nearly spherical). Plant caespitose with short rhizome and many strict slender leafless culms 10-35 cm. long with purplish basal sheaths. Leaves strict rigid, convolute filiform, shorter than the culms. Spikelets with very short but conspicuous terminal male part. Female glumes broadly ovate obtuse chestnut with broad hyaline margin. Utricles longer than the glumes ultimately patent ovate plane-convex 3 mm. long, pale green, shining and glabrous, striolate not veined, abruptly contracted into blackish-blood-red smooth beak. Stigmas 2.

Arctic and Alpine: Iceland, Scandinavia, Tirol, Transylvania; Siberia; America from Greenland, Canada, Rocky Mts. to Central America, S. Andes, and Tierra del Fuego.

766/1. Anthoxanthum odoratum L. Sharman, B. C. (1945: A Note on Sweet Vernal Grass, *Anthoxanthum odoratum* L.; *Naturalist*, No. 813, 49-50) records the continued growth of the unpollinated styles of plants grown in a greenhouse. The styles reached a length of 8-12 mm. All the plants were of one clone and were self sterile. It is suggested that *Anthoxanthum* has more affinities with the sub-family Panicoideae than with the Pooideae in which it is placed by unanimous opinion. "It has spikelets with a single terminal flower, is the only British grass with only two stamens, is protogynous (a rather rare feature which it shares with *Alopecurus* and *Phleum*), has spikelets reduced from below upwards as in the Panicoideae, its styles continue growth if not pollinated as in *Zea*, and its chromosome number (multiples of 5 or 10) is not at all typical of the Pooideae, but characteristic of the other sub-family, the Panicoideae."—[Wa.]

777. Phleum. Cytological studies of haploid *P. pratense* L. (2n = 14), triploid *P. nodosum* (2n = 21) and hybrids between ordinary *P. pratense* "Timothy" (2n = 42), triploid *P. nodosum*, and *P. alpinum* (2n = 28: tetraploid), are described by Nordenskiöld, H. (1941: *Bot. Not.*, 12-32). It seems likely that *P. pratense* is an autopolyploid of *P. nodosum*.

819/1. Dactylis glomerata L. Several permanent cytological differences between different clones of this species are noted by Myers, W. M. (1943: *Bot. Gaz.*, *104*, 541-552).

824/10. POA COMPRESSA L. A new hybrid between this species and *P. palustris* L., which arose spontaneously in a culture of a number of *Poa* species, is described by Kiellander, C. L. (1944: *Bot. Not.*, 363-371).

825/1. GLYCERIA MAXIMA (Hartm.) Holmberg—*Effect of drought on flowering.* A deltaic area of some 8 acres at the debouchment of the R. Glyme into the lake at Blenheim Park, Woodstock, Oxfordshire, bears an almost pure *Glycerietum maximae* extending from the open water to the original bank of the lake. Material observed here in July 1944, following an exceptionally hot dry period, showed an interesting series in inflorescence development along the gradual slope from the higher proximal marsh region to the distal low-lying reedswamp (the substrate level at the outer edge of the reedswamp being some 50 cms. below that at the landward edge of the *Glycerietum*). At the time of observation, the water table had sunk below the surface over the whole colonised area; at the distal edge it was approximately at rhizome level (about 10 cms. below ground level). Whereas the plants towards the water's edge were well developed and flowering freely with normal fully-expanded inflorescences, the haulms in the proximal marsh region were about half their usual height, and showed no external signs of an inflorescence; upon dissection, small withered, undeveloped inflorescences, often less than 2 cm. long, were found concealed among the leaves at the tips of the haulms. The degree of development of the inflorescences increased progressively along the slope to the open water; transitional stages showed inflorescences which had emerged, but in which the upper branches of the panicle were similarly withered and undeveloped, while the lower (and older) branches, which had presumably passed the critical stage in their development before water shortage became acute, were normally developed and expanded. In both the immediate preceding and succeeding years (when the summer water level was much higher over the whole area) normal inflorescences were developed throughout the whole *Glycerietum*.—J. M. LAMBERT.

827/9. BROMUS INERMIS Leyss. Strains selected as more resistant to artificial droughts were found by Cook, C. W. (1943: *Ecology*, *24*, 169-182) to have a longer total length of root than less resistant strains: they also in general made more vigorous herbage during the growing season.

847/1. PTERIDIUM AQUILINUM (L.) Kuhn. Watt, A. S. (1945: *New Phytol.*, *44*, 156-178) continues his "Contributions to the ecology of Bracken" in part III, "Frond types and the make-up of the population."

856/2. DRYOPTERIS CRISTATA (L.) A. Gray. 76, Renfrew; parish of Neilston, J. R. LEE and R. MACKECHNIE. In 1943 I suggested to Mr R. Mackechnie that the occurrence of this fern in the Clyde area should if possible be confirmed. *Topographical Botany*, ed. II, 1883, gives 74, Renfrew, Galt. sp. which should, of course, read *76* Renfrew. A. Bennett in *Trans. Norfolk and Norwich Nat. Soc.*, VII, 695-700, 1904, gives a summary of the then known records of *D. cristata* in Britain, and repeats error of *Top. Bot.*, giving:—74, Renfrew. " On the edge of a loch beyond Crofthead near Neilston, twelve miles S.W. of Glasgow. First discovered by Dr W. Arnott and Mr Clarke, Curator of the Glasgow Bot. Garden." W. Galt, in Watson's *Comp. Cyb. Brit.*, 615, 1870! Mr Somerville was unable to find it here, " Loch Libo," in September 1903.

In Druce's *Comital Flora*, 387, 1932, we find 74 given and also 74 and 76 bracketted as doubtful!, while J. R. Lee in *Flora of the Clyde Area*, 353, 1933, gives " Beyond Crofthead," *Cl. Fl.*, referring thus to the last edition of Hennedy's *Clydesdale Flora* and implying that the record is in need of confirmation. In view of the typographical errors perpetuated since *Top. Bot.*, II, 1883, it was with great satisfaction that Messrs Lee and Mackechnie refound the plant sparingly on the third special search they made, July 25th, 1945. This record establishes *D. cristata* as a present day member of the Scottish flora and necessitates a correction to *C.F.*, removing brackets from 76 and deleting all reference to 74 whence there are no records. E. C. WALLACE.

870/6. LYCOPODIUM INUNDATUM L. In North America this is " one of a series of species which extend, as a somewhat perplexing group, all the way from Newfoundland to the Tropics," and an account of its varieties and forms is given: Fernald, M. L. (1946: *Rhodora*, *48*, 134-136).

PLANT RECORDS

Thanks are due to those who sent in records for the way in which nearly all followed the instructions given in the last Report. This assistance was much appreciated and it is hoped that contributors will continue. The sending of voucher specimens improved, and it is hoped that members who wish expert determinations will collect an extra specimen where possible which the expert may retain (he may at any-time wish to re-examine it!), and also collect an extra specimen of important records for deposition in a national or public herbarium. Some records sent in have been omitted because they are of critical plants and no voucher was sent after request had been made for one. The need for voucher specimens in such cases was stressed by the previous editor, and records sent in must in these circumstances remain unpublished although they are filed for future reference.

The indications [* etc.] asked for in the last Report seem to have been found complicated, and after full discussion the Editorial Sub-committee has decided that the following signs shall be used in connection with *Plant Records*:—

- § before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction in the annotated copy of *Comital Flora*.
- † before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.
- † before the record: to indicate a native species which is not native in the locality recorded.
- * before the record: to indicate new vice-county records, not published previous to the year of the Report.
- ‡ before the record: to indicate records additional to the annotated copy of *Comital Flora*, published previous to the year of the Report.
- [ ] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

As in *C.F.*, brackets will not be used for widespread aliens now distributed like denizens. The inconsistent use of brackets [ ] in *C.F.* is frequently pointed out, but it is difficult to find a satisfactory method for relating usage in these Reports to usage in *C.F.* In his *Introduction* to *C.F.* (p. ix) Dr Druce indicated that they were to be used for doubtful records (see his example, *Carex punctata*) and where there is "doubt of its nativity or of its identification." But brackets were entirely omitted for widespread alien species. It therefore seems best to use [ ] when there is doubt of the record, due to misidentification, confusion of nomenclature, or any other cause, using the † to indicate that the species is not native in that locality, even if native elsewhere in the British Isles.

Records are for the year 1945 when no year is indicated. "[n.d.]" will be added when no date was given.

The checking of certain records with *C.F.* and already published Floras and lists showed that some of these had not been collated. To avoid overweighting of *Plant Records* with such corrections to *C.F.*, the results of collation in three cases are set out in the next three paragraphs.

V.cc. 15 & 16, E. & W. Kent. Collating Hanbury & Marshall's *Flora of Kent* (1899) with *C.F.* (annotated copy) shows the following additions and corrections to be necessary. This *Flora* was not gone through by Ar. Bennett in compiling his *Supplement to Top. Bot.*, ed. 2 (1905)! Nor did H. C. Watson extract all records from Cooper's *Flora Metropolitana*, etc. 6/20. *Ranunculus fluitans* Lam. is recorded for 15 & 16 but the species was excluded "pending further investigation," as the records may refer to *R. pseudofluitans* Baker & Fogg.—*Top. Bot.*, ed. 2, gives 15, 16?; [22/1. *Meconopsis cambrica* (L.) Vig., escaped in 16]; [32/1. *Fumaria capreolata* L., 15 ("colonist or casual")]; 32/9. *F. Bastardi* Bor., add 16; 39/12. *F. Vaillantii* Lois.—for 12-14, 17, read 12, 14-17; 36/4. *Barbarea arcuata* Rchb. is given for 15; 49/5. *Sisymbrium Irio* L., 16; 61/2. *Lepidium latifolium* L., 16; 61/3. *L. Draba* L., 16; 65/1. *Iberis amara* L., 16; 67/1. *Hutchinsia petraea* (L.) R. Br. is extinct in 16; [68/1. *Isatis tinctoria* L., 15, 16]; [77/1. *Cakile maritima* Scop., 16 (on dredged gravel)]; [96/9. *Silene Otites* L., casual, long extinct]; 96/11. *S. italica* Pers., 15 as well as 16; [127/1. *Geranium sanguineum* L., 15 (" garden stray, if correctly reported) "]; 147/2. *Genista pilosa* L., for 15 read 16; 176/36. *Vicia gracilis* Lois., 15; [178/1. *Lathyrus latifolius* L., 15, 16]; 178/7. *L. hirsutus* L., given for 16 but not 15; [183/1. *Prunus Padus* L., 15, 16]; 187/2. *Geum rivale* L., 15 (old record only); 190/1. *Alchemilla vulgaris* L. sensu lato, 15 (old record, presumably 190/4); 194/18 *Rosa obtusifolia* Desv., 15; [211/2. *Sedum rupestre* L., 15, 16]; [211/10. *S. dasyphyllum* L., 16]; 211/11. *S. anglicum* Huds., 16; 217/3. *Callitriche palustris* L. (*C. vernalis* Kütz.), ?16; 219/2. *Lythrum Hyssopifolia* L., 15, 16, remove from brackets; 263/1. *Foeniculum vulgare* Mill., 16; ⟨276/1. *Peucedanum officinale* L., 16 (Ray), extinct⟩; [283/8. *Caucalis latifolia* L., 16 (garden weed only)]; 301/1. *Valeriana officinalis* L. (*V. Mikanii* Syme), 15; 301/3. *V. dioica* L., 16 (in *Top. Bot. Suppl. 1*); ⟨367/1. *Diotis maritima* Cass., long extinct in 15⟩; 368/1. *Anthemis tinctoria* L. is given for 16 but not 15; 399/1. *Silybum Marianum* (L.) Gaertn., 15, 16; 405/1. *Centaurea Jacea* L., 15; 405/8 or 11. "*Centaurea nigra* L.", 15 as well as 16, needs investigation; 409/1. *Cichorium Intybus* L., 16 (is in *Top. Bot.*, ed. 2); [431/2. *Lobelia urens* L., ? 15]; 435/2. *Campanula latifolia* L., 16; 543/9. *Veronica aquatica* Benq. is presumably the "form bearing white flowers tinged with pink" from 15; 561/1 or 2. "*Thymus Chamaedrys* Fries" is given for 16 as well as 15; [574/1. *Melittis Melissophyllum* L., 16 (status doubtful)]; 577/1. *Stachys germanica* L., an old record for 15 is given; 588/5. *Plantago maritima* L., 16; 600/4. *Chenopodium hybridum* L., 15; 600/7. *C. opulifolium* L., 16; 631/1. *Buxus sempervirens* L., 15 (at *Boxley*); 641/1. *Myrica Gale* L., probably extinct in both 15 and 16; ⟨669/2. *Orchis militaris* L., 16 extinct—Northfleet (Sherard and Manningham), identified by Dr Druce (*The Dillenian Herbaria*, p. 114: 1907) but omitted from *C.F.*⟩; 684/3. *Narcissus biflorus* Curt., 16; ⟨690/1. *Asparagus maritimus* Mill., 16, extinct⟩; 691/3. *Polygonatum officinale* All., 16; [722/1. *Sparganium minimum* Fr., ? 16 (Tunbridge Wells—old record, which might not be in Kent]; 733/1. *Damasonium Alisma* Mill. (*D. stellatum* Pers.), 15; 747/4. *Eriophorum vaginatum* L., 15, ⟨16 extinct⟩; 753/7. *Carex rostrata* Stokes in With., 16; 753/57×59. ×*C. axillaris* Good., 15; 753/68. *C. divisa* Huds., 15; 770/4. *Alopecurus bulbosus* Gouan, 15; 780/2(2). *Agrostis gigantea* Roth (*A. nigra* With.), 16; 782/2. ×*Polypogon littoralis* Sm., "extinct in 16" but seen about ten years ago at All Hallows-on-Sea; [783/2. *Calamagrostis canescens* (Wigg.) Gmel. em. Druce, ? 16 (possibly only *C. Epigeios* (L.) Roth]; 785/1. *Apera Spica-venti* (L.) Beauv., 15 (*Top. Bot. Suppl. 1*), 16; 787/1. *Ammophila arenaria* (L.) Link, 16; [790/1. *Corynephorus canescens* (L.) Beauv., ? 15]; [822/2. *Briza minor* L., 15, 16]; [824/11. *Poa bulbosa* L., 15, ? errors]; 827/18. *Bromus racemosus* L., 15; [841/1. *Pinus sylvestris* L., 15, 16]; [851/1. *Asplenium marinum* L., ? 15 (ancient record)]; [870/7. *Lycopodium Selago* L., ? 15 (doubtful record)]; 873/2. *Tolypella prolifera* Leonh., 16; [876/4. *Chara rudis* Leonh., ? 15]. The following have been omitted as errors:—3/1. *Anemone Pulsatilla* L. (16); 100/7. *Cerastium pumilum* Curt., 16; 111/2. *Elatine hexandra* L., 16; 593/1. *Herniaria glabra* L., 16; 595/1. *Scleranthus perennis* L., 16 as well as 15, both probably errors; 618/2. *Rumex longifolius* DC., (*R. domesticus* Hartm.), 16; 650/12. *Salix nigricans* Sm., 16; 826/5. *Festuca sylvatica* Huds., 15.

V.-c. 55. The following additions and corrections to the annotated copy of *C.F.* have been made from Horwood & Noel, *Flora of Leicestershire and Rutland*, 1933:—2/2. *Thalictrum minus* L.; [6/28. *Ranunculus Baudotii* Godr., ? error (p. 675)]; 9/1. *Helleborus viridis* L. var. *occidentalis* (Rent.) Druce, remove from brackets; 13/3. *Delphinium Gayanum* Wilmott (as *D. Ajacis*); [15/1. *Actaea spicata* L.]; 24/1. *Roemeria hybrida* (L.) DC.; [32/1. *Fumaria capreolata* L., ext.]; 36/5. *Barbarea intermedia* Bor.; 49/5. *Sisymbrium Irio* L.; [54/1. *Brassica oleracea* L.]; 55/1. *Diplotaxis tenuifolia* (L.) DC.; [65/1. *Iberis amara* L.]; [68/1. *Isatis tinctoria* L.]; 92/2. *Dianthus deltoides* L.; [96/10. *Silene nutans* L. (with synonym *S. dubia* Herb.)]; [96/11. *S. italica* Pers.]; 100/7. *Cerastium pumilum* Curt.; 102/8. *Arenaria tenuifolia* L., is a first record in the Flora, although given in *C.F.*; [115/2. *Althaea hirsuta* L.]; 123/3. *Tilia cordata* Mill.; [125/2. *Linum anglicum* Mill., ? error, see p. 725]; 127/8. *Geranium columbinum* L.; 132/2. *Oxalis* *corniculata* L.; 132/3 *O. stricta* L.; 133/3. *Impatiens parviflora* L.; [152/1. *Trigonella ornithopodioides* DC. is not given in the Flora although given in *C.F.*]; [153/2. *Medicago sylvestris* Fr. = 153/8]; 155/4. *Trifolium incarnatum* L.; 178/9. *Lathyrus Aphaca* L.; [183/5. *Prunus domestica* L.]; [184/10. *Spiraea salicifolia* L.]; [185. *Rubus*—deferred till later]; 188/1. *Fragaria moschata* Duch.; [189/11. *Potentilla norvegica* L.]; 194/5. *Rosa stylosa* Desv.; 194/9. *R. Blondaeana* Rip; 194/11. *R. Deseglisei* Bor.; 194/16. *R. agrestis* Savi; 195/2. *Pyrus communis* L.; 195/11. *P. rupicola* Syme; 195/15. *P. torminalis* L.; [195/16. *P. germanica* (L.) Hook. f.]; 211/2. *Sedum rupestre* L.; [217/3. *Callitriche palustris* L. is treated as an error on p. 675]; [217/6. *C. autumnalis* L. is also thought to be an error]; 223/2. *Oenothera grandiflora* Ait.; [225/3. *Circaea alpina* L. ?]; [240/1. *Astrantia major* L.]; [250/1. *Carum Carvi* L.]; [250/3. *C. Petroselinum* (L.) B. & H.]; 253/1. *Sium latifolium* L.; [296/5. *Galium pumilum* Murr.—some doubt]; 298/3. *Asperula cynanchica* L.; [318/1. *Aster Tripolium* L., formerly introduced, see note p. 295]; [318/20. *A. Linosyris* (L.) Bernh., recorded as a garden weed]; [333/1. *Inula Helenium* L.]; [333/2. *I. salicina* L., garden casual]; [368/1. *Anthemis tinctoria* L.]; [368/2. *A. nobilis* L. is considered an error, p. 675]; [380/3. *Petasites fragrans* Presl]; [383/1. *Senecio sarracenicus* L.]; 383/7. *S. squalidus* L.; [395/3. *Carduus tenuiflorus* Curt. is considered as a probable error, p. 675]; [405/15. *Centaurea Calcitrapa* L.]; [416/2. *Crepis paludosa* L. was probably an error, see p. 675]; 423/2. *Taraxacum erythrospermum* Andrz., as *T. lacistophyllum* Dahlst.; [427/1. *Sonchus palustris* L., only planted?]; 433/1. *Wahlenbergia hederacea* (L.) Rchb.; [435/7. *Campanula Rapunculus* L., garden weed only]; 453/3. *Pyrola minor* L.; [462/1. *Cyclamen hederifolium* Ait.]; 481/1. *Gentiana Pneumonanthe* L., ? extinct; 486/1. *Polemonium caeruleum* L., "quite native at Dimminsdale"—remove from brackets; 497/2. *Symphytum tuberosum* L.; 527/7. *Verbascum Lychnitis* L.; 534/2. *Antirrhinum Orontium* L.; [535/1. *Scrophularia vernalis* L., given in *C.F.*, is not mentioned]; [550/12. *Orobanche purpurea* Jacq., ?, needs confirmation]; 558/4. *Mentha spicata* L.; 558/11. *M. cardiaca* Baker; 558/12. *M. rubra* Huds.; 561/6. *Thymus lanuginosus* Mill.; [574/1. *Melittis Melissophyllum* L.]; 589/1. *Littorella uniflora* (L.) Asch.; 600/12. *Chenopodium ficifolium* Sm.; [615/1. *Polygonum dumetorum* L., doubtful, needs confirmation]; 618/7. *Rumex sanguineus* L.; 618/12. *R. palustris* Sm.; 622/1. *Aristolochia Clematitis* L.; [628/6. *Euphorbia stricta* L., only a garden weed]; [263/9. *E. virgata* W. & K. ? (as *E. Esula*) requires confirmation]; [628/11. *E. Cyparissias* L.]; [631/1. *Buxus sempervirens* L., planted]; [637/3. *Urtica pilulifera* L., ?, requires confirmation]; 652/1. *Empetrum nigrum* L. is not said to be extinct; [655/1. *Hydrocharis Morsus-Ranae* L., only introduced?]; [667/2. *Cephalanthera Damasonium* (Mill.) Druce and 667/3. *C. longifolia* (Huds.) Fritsch were probably errors, p. 675]; 669/10. *Orchis ericetorum* (Linton) E. S. Marshall (as *O. maculata* L. (*vera*)), but this is recorded in *Top. Bot. Suppl. 2*;

[672/5. *Ophrys muscifera* Huds., requires confirmation]; 673/1. *Herminium Monorchis* (L.) R. Br.; [680/1. *Sisyrinchium angustifolium* Mill., introduced]; [686/2. *Leucojum aestivum* L.]; [689/1. *Ruscus aculeatus* L., bracket—"always planted"]; ‹715/1. *Tofieldia palustris* Huds.—was native, now extinct›; 718/1. *Juncus maritimus* Lam.; 718/15. *J. Gerardi* Lois.; 719/3. *Luzula Forsteri* Sm. is considered native, but "not seen since Babington's time"; 722/5. *Sparganium minimum* Fr.; 730/1. *Baldellia Ranunculoides* (L.) Parl; [746/5. *Scirpus triqueter* L. was probably an error, p. 675]; 746/8. *S. pauciflorus* Lightf., delete "extinct"; 748/2. *Rhynchospora alba* (L.) Vahl, probably extinct; [750/1. *Cladium Mariscus* R. Br., doubtful record, by H. C. Watson, probably an error]; [753/17. *Carex distans* L., delete—records considered to be only *C. binervis* Sm.]; 753/22. *C. serotina* Mérat; [753/61. *C. Pairaei* F. Sz., requires confirmation—as probably an error on p. 675]; 753/75. *C. dioica* L. is not extinct; 756/2. *Setaria viridis* (L.) Beauv.; 795/2. *Arrhenatherum tuberosum* (Gilib.) Druce; 809/2. *Koeleria britannica* (Domin) Druce; 825/3(2). *Glyceria declinata* Bréb; [826/3. *Festuca arundinacea* Schreb., probably error, p. 675]; 826/8. *F. dumetorum* L.; [829/3. *Lolium remotum* Schrank, probably an error, p. 675]; [841/1. *Pinus sylvestris* L., sometimes subspontaneous]; [851/3. *Asplenium viride* Huds., doubtful and probably extinct if correct]; ‹864/1. *Osmunda regalis* L., recorded but extinct›; 867/1. *Pilularia globulifera* L.; 872/3. *Nitella flexilis* Ag.; [876/12. *Chara aspera* Willd., given in *C.F.*, is not in the *Flora*, and no record is known to G. O. Allen: delete]. [The following have been omitted as presumably due to error, and see *Flora*, p. 675:—36/1. *Barbarea stricta* Andrz.; 88/5. *Viola rupestris* Schmidt; 105/3. *Spergularia salina* J. & C. Presl; 127/11. *Geranium rotundifolium* L.; 149/3. *Ulex minor* Roth; 176/9. *Vicia lutea* L.; 176/14. *V. lathyroides* L.; 211/11. *Sedum anglicum* Huds.; 245/5. *Bupleurum tenuissimum* L.; 265/3. *Oenanthe crocata* L.; 276/2. *Peucedanum officinale* L.; 295/1. *Rubia peregrina* L.; 305/5. *Valerianella rimosa* Bast.; 396/3. *Cirsium heterophyllum* (L.) Hill; 425/3. *Lactuca saligna* L.; 458/4. *Armeria maritima* Willd. (as *Statice maritima* Mill.); 581/5. *Lamium molucellifolium* Fr.; 587/4. *Ajuga Chamaepitys* (L.) Schreb.; 606/2. *Atriplex littoralis* L. (*A. angustifolia maritima dentata* Morison); 615/10. *Polygonum mite* Schrank; 628/10. *Euphorbia Esula* L. (probably *E. virgata* W. & K.); 722/4. *Sparganium angustifolium* Michx.; [746/3×5 ["3 bis"] ×*Scirpus carinatus* Sm.]. A list of species probably now extinct is given on p. 675.

V.-c. 71, Man. Paton, C. I.; 1933: A List of Flowering Plants, Ferns, and Horse-Tails of the Isle of Man; *The North Western Naturalist* (June and September) 547-619—reprinted (1934) in *The Isle of Man Natural History and Antiquarian Society, Proceedings* (*N.S.*), III, no. V, with unchanged pagination. This list contains a large number of species not recorded in *Top. Bot.*, *Supps.*, or *Comital Flora*, and it was not gone through by P. M. Hall for his annotated copy of *C.F.* bequeathed to the Society. The numerous records new to v.-c. 71 were not extracted for the Society's Reports, and they are therefore given now for those who would keep their copies of *C.F.* up to date. The main list is followed by a list (pp. 608-613: indicated here by " B.") of " 'Escapes and Records requiring Confirmation' " and a few " Addenda to List of Manks Flowering Plants, etc." (p. 614: here indicated by " C."). A supplementary list—Paton, C. I.; 1944: " Isle of Man Botanical Report and Revision of Catalogues of Manks Flowering Plants and Ferns, 1934-1943," appeared in *The North Western Naturalist* for 1944 (Sept.), 164-170 (1945), here indicated by " 1944," followed by a few " Addenda, October 1944," indicated by " 1944 A." It is a little difficult to decide which of these records should be bracketed. Some of the doubtful records " requiring confirmation," relegated by Paton in 1933 to the list here indicated by B., have since been confirmed, e.g., *Coeloglossum viride*. But *Rumex maritimus* was included in the main list solely on the authority of Gasking's list (which contained a number of errors or slips), unsupported by specimens, whereas *Helianthemum guttatum* on the same authority is relegated to list B. *Geranium pyrenaicum* Burm. f. is relegated to list B. although so far recorded vice-counties 45-70 and 72 and no reason for doubt is given. A considerable number of species given in *C.F.* are relegated by Paton to B. as mere introductions or escapes, or probably so, and their status requires further investigation. This list will require further consideration before a second edition of *C.F.* is produced. The additions (and corrections) required in *C.F.* are as follows—introductions and escapes being marked by † in [ ] except aliens left unbracketed in *C.F.*, errors or presumed errors by [ ], and doubtful records by ?:—[†1/1. *Clematis Vitalba* L., B., also 1944]; 6/6. *Ranunculus Lingua* L.; 6/9. *R. arvensis* L.; 6/11. *R. sceleratus* L.; 6/24. *R. heterophyllus* Weber emend. Bab.; 6/28. *R. Baudotii* Godr.; 6/31. *R. Lenormandi* F. Schultz; [†14/1. *Aconitum anglicum* Stapf.: B., as *A. Napellus* L.]; 19/1. *Nuphar lutea* (L.) Sm.; 20/1. *Nymphaea alba* L.; 25/1. *Chelidonium majus* L.; 32/1. *Fumaria capreolata* L.; 32/5. *F. Boraei* Jord.; [32/6. *F. muralis* Sond., B., ?, requires confirmation, Ed.]; 35/4. *Rorippa islandica* (Oeder) Schinz & Thell., C. (as *Nasturtium palustre* DC.); 39/4. *Cardamine flexuosa* With.; [44/1. *Erophila verna* (L.) E. Meyer—the precise segregate requires to be determined, Ed.]; 45/5. *Cochlearia anglica* L. (1944); 45/6. *C. scotica* Druce (as *C. groenlandica* auct. angl.—? the *C. alpina* given in brackets in *C.F.* not mentioned by Paton, Ed.); [53/1. *Subularia aquatica* L., given in *C.F.* is not mentioned by Paton]; 61/3. *Lepidium Draba* L. (1944: "casual"); [61/4. *L. ruderale* L., B., ?]; [87/1. *Helianthemum guttatum* (L.) Mill., B.]; 88/3. *Viola Reichenbachiana* Jord. (as *V. silvestris* Lam.); [†88/8. *Viola odorata* L., given in *C.F.*, is only " introduced," B.—bracket in *C.F.*]; 89/1. *Polygala serpyllifolia* Hose, C. (as *P. serpyllacea* Weihe); 92/2. *Dianthus deltoides* L.; 95/1. *Saponaria officinalis* L.; 96/4. *Silene noctiflora* L.—" one specimen about 1885 "; [96/6. *S. quinquevulnera* L. (? escape)] [98/8. *S. acaulis* L., ?, B.]; 98/3. *Lychnis alba* Mill.; [101/2. *Stellaria nemorum* L. (old unconfirmed record)]; [102/1. *Arenaria trinervia* L., ?, B.]; 102/10. *A. verna* L.; 103/1. *Sagina nodosa* (L.) Fenzl; 104/1. *Spergula arvensis* L. (as *S. vulgaris* Boenn.); 105/2. *Spergularia marginata* (DC.) Kittel, see also 1944; 108/2. *Claytonia perfoliata* Donn; 115/1. *Althaea officinalis* L.; [117/3. *Malva neglecta* Wallr., ?, B. (as *M. rotundifolia* L.); [127/1. *Geranium sanguineum* L., B.]; 127/2. *G. versicolor* L., B.; [127/3. *G. sylvaticum* L., ?, B.]; [127/4. *G. pratense* L., given in *C.F.*, only an "escape ?," B.]; 127/7. *G. pyrenaicum* Burm. fil., B.; [132/2. *Oxalis corniculata* L., "always planted," B.]; 147/3. *Genista tinctoria* L.; 154/3. *Melilotus arvensis* Wallr. (as *M. officinalis* Lam.); [155/1. *Trifolium medium* (L.) Huds., ?]; 155/15. *Trifolium hybridum* L.; [176/4. *Vicia Orobus* DC., in *C.F.*, suspected]; 183/2. *Prunus Padus* L.; [183/4. *P. Cerasus* L., ? error, see 1944]; 184/10. *Spiraea salicifolia* L., B.; [184/12. *S. Filipendula* L., see 1944, ? not native]; 185/153. *Rubus caesius* L.; 193/2. *Poterium polygamum* W. & K., B.; 194/2. *Rosa arvensis* L.; 194/6. *R. canina* L.; 194/10. *R. dumetorum* Thuill.; 194/12. *R. Afzeliana* Fr. (as *R. glauca* Vill.); 194/15. *R. rubiginosa* L.; 194/19. *R. tomentosa* Sm.; [195/1. *Pyrus Malus* L., given in *C.F.*. "probably not native," B.]; [199/2. *Saxifraga oppositifolia* L., B., "probably a slip for *Chrysosplenium oppositifolium*"—ignore, Ed.]; 199/17. *S. granulata* L.; [†199/24. *S. umbrosa* L., B., "run wild"]; [†199/25. *S. Geum* L., B.]; 211/1. *Sedum purpureum* Link (as *S. Telephium* L.), B., also 1944; 211/2. *S. rupestre* L., B.; 211/3. *S. reflexum* L., B.; 211/7. *S. album* L., B.; 216/2. *Myriophyllum alterniflorum* L.; 216/3. *M. verticillatum* L.; 217/1. *Callitriche stagnalis* Scop.; 217/5. *C. intermedia* Hoffm., 1944; 218/1. *Peplis Portula* L.; 247/1. *Apium graveolens* L. ("? Native"); 247/5. *A. inundatum* (L.) Rchb. fil.; [248/1. *Cicuta virosa* L.: error suspected]; 250/1. *Carum Petroselinum* (L.) B. & H., "well established"; [250/4. *C. segetum* (L.) B. & H. "I have seen no specimen"]; 253/2. *Sium erectum* Huds.; 255/2. *Pimpinella Saxifraga* L.; [265/4. *Oenanthe pimpinelloides* L., error ?]; 276/5. *Peucedanum Ostruthium* (L.) Koch; [287/2. *Sambucus Ebulus* L., B.—"requires confirmation"]; [288/1. *Viburnum Opulus* L., B.—"requires confirmation"]; [296/6. *Galium uliginosum* L., B.—"requires confirmation"]; 298/1. *Asperula odorata* L.; [301/1. *Valeriana officinalis* L. records refer to 301/2. *V. sambucifolia* Mikan, 1944]; 302/1. *Centranthus ruber* (L.) DC., B.; [304/3. *Valerianella dentata* (L.) Poll., ? error]; 308/1. *Scabiosa Columbaria* L.; 320/2. *Erigeron acer* L.; 333/1. *Inula Helenium* L., B.; 353/1. *Bidens cernua* L.; 368/3. *Anthemis arvensis* L.; 368/4. *A. Cotula* L.; 370/13. *Chrysanthemum Parthenium* L.; 371/3. *Matricaria suaveolens* (Pursh) Buch.; 383/1. *Senecio sarracenicus* L.; [383/6. *S. erucifolius* L., ? error]; [393/1. *Arctium Lappa* L. (*A. majus* Bernh.), ? error for next—bracket]; 393/2. *A. vulgare* (Hill) Evans (as "*A.* [*intermedium*], var. *subtomentosum* Ar. Benn."); [393/3. *A. minus* (Hill) Bernh., ? error for 393/2]; 395/1. *Carduus nutans* L.; 395/2. *C. acanthoides* L. (as *C. crispus* L.); 397/1. *Onopordum Acanthium* L., B.; 399/1. *Silybum Marianum* (L.) Gaertn., B.; 405/11. *Cen-*

taurea nemoralis Jord.; 415/2. *Picris hieraeioides* L.; 419/8. *Hieracium brunneocroceum* Pugsl., C. (as *H. aurantiacum* L.); 428/2. *Tragopogon pratensis* L. (as *T. minus* Mill.); 438/3. *Vaccinum Vitis-idaea* L.; [457/1. *Limonium vulgare* Mill., B., "perhaps a slip for *L. binervosum*"]; [460/1. *Primula elatior* (L.) Schreb., B., apparently *P. veris*×*vulgaris*]; [460/4. *P. farinosa* L., B., " needs confirmation "] 463/2. *Lysimachia vulgaris* L., 1944 A; 467/3. *Anagallis foemina* Mill.; [478/3. *Centaurium latifolium* (Sm.) Druce, B. (as *Erythraea latifolia*), " needs confirmation "]; [478/4. *C. pulchellum* (Sw.) Druce, B. (as *E. pulchella*), "needs confirmation "]; [†482/1. *Nymphoides peltatum* (S. G. Gmel.) Britt. & Rend., B., " deliberately introduced "]; 500/1. *Anchusa sempervirens* L., B.; 505/1. *Mertensia maritima* (L.) S. F. Gray; 506/3. *Myosotis secunda* A. Murray (as *M. repens* G. & D. Don); 532/26. *Linaria Cymbalaria* (L.) Mill., B.; 534/2. *Antirrhinum Orontium* L., 1944, " probably introduced "; 535/2. *Scrophularia aquatica* L.; 537/1. *Mimulus guttatus* DC., B. (as *M. Langsdorffii*); 543/18. *Veronica persica* Poir.; 543/21. *V. hederaefolia* L.; 545/3. *Euphrasia brevipila* Burn. & Gremli; 549/3. *Melampyrum pratense* L. (as var. *montanum* Johnst.); 551/1. *Lathraea Squamaria* L., B.; 558/6. *Mentha piperita* L., " ? native "; 560/1. *Origanum vulgare* L., and see 1944; 562/5. *Satureia ascendens* (Jord.) Druce; [562/7. *S. Nepeta* (L.) Scheele, " no specimens "—presumably errors, Ed.]; 563/1. *Clinopodium vulgare* L.; 577/13. *Stachys officinalis* (L.) Trev., " no recent record "; [578/3. *Galeopsis dubia* Leers, B.—requires confirmation]; †581/1. *Lamium album* L., B.; 581/5. *L. molucellifolium* Fr.; 581/10. *L. Galeobdolon* (L.) Cr., B.; 583/1. *Ballota nigra* L.; [†588/9. *Plantago media* L., B., "introduced"]; 589/1. *Littorella uniflora* (L.) Asch.; 600/14. *Chenopodium Vulvaria* L.; 606/2. *Atriplex littoralis* L.; 606/5. *A. hastata* L.; 606/7. *A. glabriuscula* Edmondst.; 611/3. *Salicornia dolichostachya* Moss, 1944; 615/15. *P. aequale* Lindm.; 618/13. *Rumex maritimus* L.; 626/1. *Viscum album* L., B.; 633/6. *Ulmus stricta* Lindl., B.; 642/2. *Betula pubescens* Ehrh., 1944; 644/1. *Carpinus Betulus* L., B.; 651/1. *Populus canescens* Sm., 1944; [651/8. *P. alba* L., "probably planted"]; 664/2. *Spiranthes spiralis* (L.) C. Koch; [669/8. *Orchis praetermissa* Druce, = the next, see 1944]; 669/9. *O. purpurella* T. & T. A. Steph., 1944; 669/11. *O. Fuchsii* Druce, 1944; 669(2)/1. *Anacamptis pyramidalis* (L.) Rich.; 674(3)/1. *Coeloglossum viride* (L.) Hartm., B., and 1944; 684/1. *Narcissus pseudo-Narcissus* L., B.; 684/3. *N. biflorus* Curt., B.; 718/14. *Juncus compressus* Jacq.; 718/15. *J. Gerardi* Lois.; 721/1. *Typha latifolia* L.; 722/1. *Sparganium neglectum* Beeby; 722/2. *S. ramosum* Huds.; 722/4. *S. angustifolium* Michx.; 727/3. *Lemna trisulca* L.; 737/17. *Potamogeton crispus* L.; 739/1. *Zannichellia palustris* L.; 747/4. *Eriophorum vaginatum* L.; 749/1. *Schoenus nigricans* L., B., "needs confirmation"; 753/9. *Carex hirta* L.; 753/10. *C. pendula* Huds.; 753/22. *C. serotina* Mérat (as *C. Oederi* Retz); 753/34. *C. pallescens* L., 1944; 753/57. *C. remota* L.; 753/59. *C. Otrubae* Podp. (as *C. vulpina* L.); 753/60. *C. spicata* Huds. (as *C. contigua* Hoppe); 753/63. *C. pani-*

culata L.; 753/70. *C. incurva* Lightf.; [753/72. *C. pauciflora* Lightf., B., "needs confirmation"]; 753/75. *C. dioica* L.; [758/2. *Spartina stricta* (Ait.) Roth, ? slip for *Nardus stricta* L.; ignore, Ed.]; 783/1. *Calamagrostis epigeios* (L.) Roth, B.; 809/4. *Koeleria albescens* DC. (as *K. glauca* v. *albescens*); 818/2. *Melica uniflora* Retz.; †824/1. *Poa Chaixii* Vill., B., "not really native"; 825/3(2). *Glyceria declinata* Bréb., 1944; 827/17. *Bromus pratensis* Ehrh. (as *B. commutatus* Schrad.); 827/18. *B. racemosus* L.; 829/2. *Lolium temulentum* L.; 829/3. *L. remotum* Schrank; 835/2. *Hordeum murinum* L.; 840/1. *Taxus baccata* L., "possibly native, but usually, if not always, planted"; [†841/1. *Pinus sylvestris* L., B., "bog timber, but now re-introduced"]; 844/6. *Equisetum palustre* L.; 844/9. *E. variegatum* (Schleich.) Weber; 851/4. *Asplenium obovatum* Viv., B. (as *A. lanceolatum* Huds.)—requires confirmation; 856/5. *Dryopteris aemula* (Brackenr.) Kuntze (as *Lastrea aemula* Brackenr.); 856/8. *D. Thelypteris* (L.) A. Gray (as *L. Thelypteris* (Bory); 856/10. *D. Linneana* C. Christ.; [857/2. *Cystopteris regia* Presl, and 853/3. *C. Dickieana* Sim., see B., both planted?, the first "certainly not native"; ignore both, Ed.]; [867/1. *Pilularia globulifera* L., B., "needs confirmation"]; 876/3. *Chara vulgaris* L.

6/10. Ranunculus sardous Cr. 17, Surrey; a few plants on clay soil by Horne aerodrome, J. A. Whellan, det. J. E. Lousley.

6/13. Ranunculus parviflorus L. 19, N. Essex; on a sunny hedge bank near St Osyth, J. A. Whellan. 30, Beds.; Colmworth, J. G. Dony.

§6/21. Ranunculus circinatus Sibth. *35, Mon.; reen near Magor, H. K. Airy Shaw.

§†14/1. Aconitum anglicum Stapf., (presumably: no flower, but leaf correct). *96, Easterness; shingle of R. Enrick, Drumnadrochit, Miss M. S. Campbell, det. A. J. Wilmott.

21/4. Papaver Lecoqii Lamotte. 34, W. Glos.; docks, Lydney, S. G. Charles, comm. W. R. Price.

21/6. Papaver hybridum L. 33, E. Glos.; Fiddington, near Tewkesbury, C. W. Bannister, comm. W. R. Price.

†36/2. Barbarea verna (L.) Asch. 33, E. Glos.; Tewkesbury, C. W. Bannister, comm. W. R. Price.

§†36/5. Barbarea intermedia Bor. 33, E. Glos.; Claydon, Ashchurch, C. W. Bannister, comm. W. R. Price. *96, Easterness; shingle of R. Enrick, Drumnadrochit, Miss M. S. Campbell.

§37/1. Arabis hirsuta (L.) Scop. *30, Beds.; Chaul End, Cuddington, 1945, H. Salmon and D. B. Slope, comm. J. G. Dony.

37/6. Arabis glabra (L.) Bernh. 19, N. Essex; on a dry hedge bank near Weeley, J. A. Whellan.

†39/6. Cardamine trifolia L. 4, N. Devon.; naturalised in abundance in Trentishoe churchyard, Wm. Howard, comm. Nat. Mus. Wales.

43/4. Draba muralis L. 33, E. Glos.; old wall, near Sezincote, Miss D. A. C. Long, comm. W. R. Price.

†47/2. Hesperis matronalis L. 38, Warw.; Bills Lane, Shirley, probably garden escape, but gradually spreading, 1943-45, L. T. Adams. 96, Easterness; shingles of R. Enrick, Drumnadrochit, Miss M. S. Campbell.

†49/5 Sisymbrium Irio L. 21, Middx.; London (just outside city boundary), Trinity Gardens, E.C., 1945, K. E. Evetts, confirmed by A. J. Wilmott—[not there in 1946, J. E. Lousley.]

50/1. Erysimum cheiranthoides L. †89, E. Perth; in waste ground at Pitlochry, J. A. Whellan.

54/1. Brassica oleracea L. 14, E. Sussex; cliffs by Cuckmere Haven, in plenty (Wolley-Dod (*Fl. Sussex*, p. 40) says:—" probably extinct as a native in Sussex), F. Rose.

†54/20. Brassica gallica (Willd.) Druce. 34, W. Glos.; Sharpness Docks, R. B. Abell.

55/1. Diplotaxis tenuifolia (L.) DC. 45, Pembr.; near Tenby Station, R. B. Abell. †55, Leics.; waste ground, Evington, Leicester, F. A. Sowter.

†74/2. Bunias orientalis L. 18, S. Essex; abundant by the main Tilbury road at Barking, and a few plants near Barking Power Station. J. A. Whellan. 21, Middx.; abundant on a roadside in the Isle of Dogs, J. A. Whellan.

75/1. Crambe maritima L. 14, E. Suss.; very fine and abundant at Cuckmere Haven: plentiful at Pevensey Bay: apparently this has greatly increased during the war owing to absence of interference, F. Rose.

†76/1. Rapistrum perenne (L.) All. 30, Beds.; roadside, Cople, J. G. Dony, det. A. J. Wilmott.

†76/3. Rapistrum rugosum (L.) All. 17, Surrey; cultivated field on the Downs above West Horsley, N. Y. Sandwith.

§77/1. Cakile maritima Scop. *16, W. Kent; All Hallows beach: plenty at Grain beach, F. Rose.

80/2. Raphanus maritimus Sm. 14, E. Suss.; Kemptown, Brighton, 1944, L. A. W. Burder.

88/3b. Viola Reichenbachiana Jord. ex Bor. var. punctata (Rouy & Fouc.) Wilmott. 3, S. Devon; terrace of Lindridge House (near Newton Abbot), B. M. Morgan, det. A. J. Wilmott.

§88/7. Viola lactea Sm. *21, Middx.; "Hounslow Drilling Ground," W. W. Newbould, 1868, in Hb. Trimen as *V. canina*, det. A. J. Wilmott (1922, as "*V. lactea* (or hybrid)", and confirmed 1946).

89/7. Polygala austriaca Cr. 15, E. Kent; in fair quantity near Lenham downs, F. Rose.

101/4. Stellaria neglecta Weihe. 30, Beds.; Flitwick, E. Milne-Redhead.

§102/6. Arenaria leptoclados Guss. 39, Staff.; only in one "artificial habitat," status doubtful, E. S. Edees (1945: *N.W. Nat.*, *19*, 273). *63, S.W. York.; Armthorpe Quarry, near Doncaster, 1944, J. M. Taylor (1945: *Naturalist*, No. 812, 23).

§103/7(2). Sagina filicaulis Jord. *30, Beds.; wall of The White Horse Inn, Eaton Socon, 1936, A. J. Wilmott.

†112/5. Hypericum calycinum L. 44, Carm.; Ely Bridge, R. B. Abell.

112/12. Hypericum dubium Leers. 15, E. Kent; Perenden Heath (Maidstone); 16, W. Kent; stream E. of High Rocks (Tunbridge Wells), on Kent side, very rare in Kent; both F. Rose. 33, E. Glos.; in plenty in old meadow behind Midhurst, Hucclecote, Gloucester, J. W. Haines.

112/12×14. Hypericum dubium Leers × perforatum L. 17, Surrey; in at least two spots in shade in the wild part of Kew Gardens, apparently a survival of the native flora, 1941 and subsequently (only *H. perforatum* and *H. humifusum* are recorded in *The Wild Fauna and Flora* of the Gardens, published in 1906, and its numerous supplements), N. Y. Sandwith.

†116/5. Lavatera thuringiaca L. 30, Beds.; Cockayne Hatley Wood, but probably an escape from nearby Churchyard, J. G. Dony, det. with N. Y. Sandwith and E. Milne-Redhead.

†116/8. Lavatera trimestris L. 30, Beds.; cornfield weed, Arlesey, P. Taylor, comm. J. G. Dony, det. with N. Y. Sandwith and E. Milne-Redhead.

†117/5. Malva Alcea L. 30, Beds.; rubbish dump, Sundon, H. B. Souster, comm. J. G. Dony, det. with N. Y. Sandwith and E. Milne-Redhead.

§125/2. Linum anglicum Mill. *†, 30, Beds.; rubbish dump, Sundon, J. G. Dony.

†127/2. Geranium versicolor L. 42, Brecon.; near Brecon, Miss D. P. Williams, comm. Nat. Mus. Wales.

†127/5. Geranium phaeum L. 44, Carm.; near Ely Bridge, R. B. Abell.

127/8. Geranium columbinum L. 38, Warw.; Bills Lane, Shirley, very local, L. T. Adams.

127/10b. Geranium molle L. var. aequale Bab. 34, W. Glos.; arable field, Tarlton near Cirencester, abundant, E. Milne-Redhead.

127/12. Geranium pusillum L. 36, Heref.; on the limestone of Nash Scar, N.E. of Kington, N. Y. Sandwith.

†128/5. Erodium Botrys (Cav.) Bert. 30, Beds.; Biggleswade: Potton, J. G. Dony, det. A. J. Wilmott.

†133/2. Impatiens capensis Meerb. 6, N. Som.; bank of Avon at Newton St Loe, 1944, Dr C. L. Walton (C. I. Sandwith, 1945, 15).

†133/3. Impatiens parviflora DC. 14, E. Suss.; Brighton, L. A. W. Burder.

§†133/4. Impatiens Roylei Walp. *30, Beds.; Tempsford, E. Milne-Redhead and J. G. Dony.

147/2. Genista pilosa L. 48, Mer.; Cader Idris (Mynydd Moel and Mynydd y Gader), confirming old record, E. Price Evans (1945: 176).

153/1. Medicago falcata L. †15, E. Kent; Wouldham, on river wall, F. Rose. 30, Beds.; roadside, Biggleswade, J. G. Dony.

153/2. Medicago sylvestris Fries. †15, E. Kent; Wouldham, on river wall, F. Rose (as ×*M. sylvestris* Fries).

†153/4b. Medicago hispida var. denticulata (Willd.) G. & G. 30, Beds.; Westoning, E. Milne-Redhead: Gravel-pit, Eaton Socon: Clophill: Biggleswade: J. G. Dony (as *M. denticulata* Willd.).

§153/6. Medicago minima (L.) Bartal. *30, Beds.; Biggleswade, J. G. Dony: Gravel-pit, Eaton Socon, C. C. Foss and J. G. Dony.

†153/8. MEDICAGO VARIA Martyn. 34, W. Glos.; Sharpness Docks, R. B. ABELL, comm. W. R. PRICE (as ×*M. varia* Martyn)—the relation of this to *M. sylvestris*, both of which are commonly supposed to be *M. falcata* × *sativa*, requires further investigation, and specimens of both, with their putative parents when growing together, would be welcomed, A. J. WILMOTT.

†153/26. MEDICAGO PRAECOX DC. 30, Beds.; Biggleswade, E. MILNE-REDHEAD and J. G. DONY, det. with N. Y. SANDWITH.

155/18. TRIFOLIUM SUFFOCATUM L. 16, W. Kent; Shorne Warren: Green Street Green (near Darenth): Isle of Grain: 1945, F. ROSE.

§†155/19. TRIFOLIUM AGRARIUM L. 4, N. Devon: a few plants in a clover field at Belstone, 1881, W. B. WATERFALL, vide specimen in his herbarium recently presented to Herb. Kew.—not recorded from District II, Sub-district E, in Martin and Fraser's *Flora of Devon*—det. and comm. N. Y. SANDWITH. *30, Beds.; gravel-pit, Eaton Socon, J. G. DONY.

155/22. TRIFOLIUM FILIFORME L. 45, Pembr.; Tenby, R. B. ABELL.

†155/37. TRIFOLIUM RESUPINATUM L. 34, W. Glos.; Sharpness Docks, R. B. ABELL.

§176/9. VICIA LUTEA L. *†7, N. Wilts.; railway track, Christian Malford, N. PESKETT, comm. J. D. GROSE. ‡58, Ches.; Caldy Hill, West Kirby, Miss M. B. Hewlett (N. F. Ellison: *N.W. Nat.*, *20*, 73), " confirming " an old record by Miss Grundy (1862) from the banks of the R. Dee, West Kirby, where it was destroyed by heavy storms in 1863.

§†178/1. LATHYRUS LATIFOLIUS L. ‡17, Surrey; Burdon Lane, Banstead Downs, known by me for over 20 years, E. C. WALLACE (see *1938 Rep.* for previous record, to which add *).

178/2. LATHYRUS SYLVESTRIS L. 33, E. Glos.; lane near Winchcombe, Miss L. ABELL.

178/9. LATHYRUS APHACA L. 14, E. Suss.; a few plants on a hedge bank near Tarring Neville, J. A. WHELLAN.

†183/8. PRUNUS CERASIFERA Ehrh. 30, Beds.; Miletree Farm, Heath and Reach, E. MILNE-REDHEAD and J. G. DONY, det. R. MELVILLE. 17, Surrey; hedges by West Horsley Place, 1943, N. Y. SANDWITH.

†184/7. SPIRAEA OPULIFOLIA L. 17, Surrey; one bush in a wood between Claygate and Steer Lane, 1943, N. Y. SANDWITH [3013] (as *Physocarpus opulifolius* (L.) Maxim.).

†184/10. SPIRAEA SALICIFOLIA L. 44, Carm.; hedges, Cynghordy, J. A. WEBB, comm. NAT. MUS. WALES.

187/2. GEUM RIVALE L. 43, Radnor; damp wood near Siluria, between New Radnor and Dolyhir, C. I. and N. Y. SANDWITH.

†188/4. FRAGARIA CHILOENSIS Duchesne. 44, Carm.; edge of a wood near Carway, J. A. WEBB, comm. NAT. MUS. WALES.

189/6. POTENTILLA VERNA L. 39, Staff.; Manifold Valley (1942: W. H. Hardaker), seen in several places there since, also in the Hamps Valley, (other record in Central Staffs. "almost certainly a misnomer"); the species had escaped notice in the v.-c. for seventy years, E. S. Edees (1945: *N.W. Nat.*, *19*, 273).

†189/13. POTENTILLA RECTA L. 30, Beds.; well established at least since 1938 on roadside near Luton and Dunstable Hospital, H. B. SOUSTER, comm. J. G. DONY.

†189/13b. POTENTILLA RECTA L. var. SULFUREA DC. 30, Beds.; in chalk grassland far removed from houses, Deacon Hill, Shillington, 1944, S. Bowden (wrongly recorded in *Journal of Letchworth Naturalist's Society*, Dec. 1944, as *P. gracilis*): Barton Hills, in similar habitat, J. G. DONY: Barton Cutting, Streatley, in similar habitat, E. MILNE-REDHEAD and J. G. DONY.

189/25. POTENTILLA PALUSTRIS (L.) Scop. 45, Pembr.; King's Moor, Kilgetty, R. B. ABELL.

§190/8. ALCHEMILLA ALPESTRIS Schmidt. *44, Carm.; near Halfway, Llandovery, J. A. WEBB, comm. NAT. MUS. WALES.

191/2. AGRIMONIA ODORATA (Gouan) Mill. 43, Radnor; Worsell Wood, Stanner, C. I. and N. Y. SANDWITH.

†192/1. ACAENA ANSERINIFOLIA (Forst.) Druce. 30, Beds.; gravel-pit, Eaton Socon, C. C. FOSS, comm. J. G. DONY.

194/8k. ROSA CANINA L. var. POUZINI (Tratt.) W.-Dod f. WOLLEY-DODII Sudre. 21, Middx.; Ruislip Lido Common, a small bush about 6 ft. high, 1942, N. Y. SANDWITH [3077], who adds "I am not aware that this very local rose has up to now been recorded outside Surrey."

194/9. ROSA CANINA L. var. BLONDAEANA (Rip.) Rouy. 43, Radnor; hedge, Llandegley, N. Y. SANDWITH [3026].

§196/2. CRATAEGUS OXYACANTHOIDES Thuill. *6, N. Som.; one bush in an old quarry on Odd Down, Bath, 1935→, D. Coombe (C. I. Sandwith, 1945, 16, as *C. oxyacantha* L. em. Jacq.). 17. Surrey; a bush on which most of the flowers bear 3 styles, on a roadside between Horsley and Shere, 1944, N. Y. SANDWITH [3016].

§†197/2. Cotoneaster microphyllus Wall. *104, Mid Ebudes; Eigg, in a burn below the Sgurr, 1943, doubtless bird sown, R. Graham.

†197/3. Cotoneaster Simonsii Baker. 44, Carm.; hedges, Llanddarog, J. A. Webb, comm. Nat. Mus. Wales.

199/19. Saxifraga rivularis L. 92, S. Aberd.; very scarce in the mossy burn flowing out of the hanging corrie below the summit of Cairn Toul, 1944, R. Graham: it was abundant in Coire an't Saighdeir (Soldiers' Corrie) nearby, 1941, E. C. Wallace.

203/1. Chrysosplenium alternifolium L. 16, W. Kent; Lunsford, near E. Malling, 1945, F. Rose.

†211/1(2). Sedum spurium M.B. 44, Carm.; quarry side near Dewydd, J. A. Webb, comm. Nat. Mus. Wales.

§217/5. Callitriche intermedia G. F. Hoffm. *63, S.W. York.; in plenty in a small dam near Whirlow Bridge, near Sheffield, 1944, John Brown, det. J. E. Lousley (1944: *N.W. Nat.*, *19*, 180). ‡66, Durham; old pond at Birtley, J. W. H. Harrison (1945: *Vasc. subst.*, *19*, 66—" although I recorded this species from the Tees Marshes in 1918, it does not appear in the *Comital Flora* ").

§219/2. Lythrum Hyssopifolia L. ‡†87, Clackmannan; Kennetpans, on ballast (J. Couper), F. B. White (1898: *Fl. Perthshire*, p. 152). *†89, E. Perth; a single casual plant by the roadside at Pitlochry, J. A. Whellan—(add to *C.F.*, but see White).

220/3×4. ×Epilobium intermedium Rchb. 62, N.E. Yorks.; Carlton Miniott near Thirsk, 1905, N. Douglas Simpson [05.363], det. G. M. Ash, 1945 (as *E. hirsutum* × *parviflorum*).

220/4×8. ×Epilobium persicinum Rchb. 43, Radnor; roadside near Old Radnor, with the parents, C. I. and N. Y. Sandwith [3028]. Each flower has 8 petals on the specimens collected.—Confirmed by G. M. Ash (as *E. parviflorum* × *roseum*).

§220/6. Epilobium Lamyi F. Schultz. *8, S. Wilts.; Southgrove Copse, J. D. Grose, det. G. M. Ash.

§220/7. Epilobium obscurum Schreb. *101, Cant.; kitchen garden weed, Dunmore House, J. S. L. Gilmour (1945: 36).

†220/7(2). Epilobium adenocaulon Hausskn. 9, Dorset; Bryanston near Blandford, N. Douglas Simpson [45.124], confirmed by G. M. Ash. 22, Berks.; garden weed, Crowthorne, 1933, N. Douglas Simpson [33.223], det. G. M. Ash, 1945. 34, W. Glos.; gravel pit, Frampton-on-Severn, W. R. Price.

220/7(2)×4. Epilobium adenocaulon Hausskn. × parviflorum Schreb. 9, Dorset; Bryanston near Blandford, N. Douglas Simpson [45.125], confirmed by G. M. Ash.

§220/9. Epilobium lanceolatum Seb. & Maur. *7, N. Wilts.; railway bank, Christian Malford, J. D. Grose, det. G. M. Ash. 15, E. Kent; gravel pits at Newnham (near Faversham; 16, W. Kent; Swanscombe Wood: Thrift Wood, S. of Greenhithe: Darenth Wood: Trottiscliffe ("Trosley"): Upper Halling: Plaxtol: Allington Quarry; all F. Rose, confirmed by G. M. Ash.

220/10×4. ×Epilobium limosum Schur. 33, E. Glos.; Coopers Hill, Gloucester, J. W. Haines, comm. W. R. Price (as *E. montanum* × *parviflorum*).

†220/17. Epilobium pedunculare A. Cunn. 69, N. Lancs.; growing in the interstices of a stone wall of soft grey slate and spreading on to stony ground near by in the lower part of Tilberthwaite Gill, Westmorland, locally plentiful on damp banks and rocks for some distance by the side of the road leading northwards from High Broadrain (N. of Grasmere) towards Thirlmere—it is quite probable that the records of *E. nummularifolium* in Wilson's *Fl. Westmorland* refer in reality to *E. pedunculare*, and they should be looked upon with suspicion unless confirmed, J. P. M. Brenan.

247/5. Apium inundatum (L.) Rchb. fil. 69, Westmorland; floating in water on lake shore at N.W. end of Grasmere (new to District 1 of the county), J. P. M. Brenan.

250/2. Carum verticillatum (L.) Koch. 45, Pemb.; King's Moor, Kilgetty, R. B. Abell.

†250/3. Carum petroselinum (L.) B. & H. 45, Pemb.; Pembroke Castle walls, Miss L. Abell.

§264/1. Crithmum maritimum L. *16, W. Kent; among the stones of the sea wall, Isle of Grain, well established, F. Rose.

§265/4. Oenanthe pimpinelloides L. *16, W. Kent; golf course between Bickley and Pett's Wood, 1943, R. W. Hale (Lousley, 1945 A, 9).

265/5. Oenanthe silaifolia M.B. 32, Northants; in quantity by the R. Nene, in Kingsthorpe meadows, Northampton—only previously recorded for v.-c. 32 at Aynhoe in the extreme S.W. (Druce, *1920 Rep.*, 126 and 229), F. Rose.

265/6. Oenanthe Lachenalii C. Gmel. 30, Beds.; The Litany, Totternhoe, J. G. Dony.

†279/1. CORIANDRUM SATIVUM L. 13, W. Suss.; on a bombed site in Midhurst, 1943, F. ROSE. 30, Beds.; rubbish dump, Sundon, E. MILNE-REDHEAD and J. G. DONY: cornfield, Harlington, J. G. DONY.

†281/1. BIFORA RADIANS M.B. 34, W. Glos.; Sharpness Docks, R. B. ABELL, det. A. J. WILMOTT.

283/2b. CAUCALIS DAUCOIDES L. var. MURICATA (Bisch.) G. & G. 13, W. Suss.; cornfield near Rudgwick, 1926, Mrs & R. GRAHAM (wrongly recorded in *B.E.C. 1926 Rep.*, 116, as *C. nodosa* Scop. var. *pedunculata* Druce from Mullion, det. G. C. Druce).

†285/3. CORNUS STOLONIFERA Michx. 44, Carm.; hedges near Fron, J. A. WEBB, comm. NAT. MUS. WALES.

296/3. GALIUM ERECTUM Huds. 15, E. Kent; Juliberry Downs, Chilham; 16, W. Kent; Mount's Wood, Swanscombe; both F. ROSE, confirmed by A. J. WILMOTT.

296/5. GALIUM PUMILUM Murr. 15, E. Kent; abundant on Juliberry Downs, Chilham, F. ROSE and D. H. KENT, confirmed by A. J. WILMOTT.

296/6. GALIUM ULIGINOSUM L. 39, Staff.; rare but "not extinct, however, having been found recently in half-a-dozen localities throughout the county," E. S. Edees (1945: *N.W. Nat.*, *19*, 273).

296/13. GALIUM ANGLICUM Huds. 15, E. Kent; in some quantity on cinders in the railway sidings at Sandwich, J. A. WHELLAN, " flowers greenish," det. J. E. LOUSLEY.

298/1. ASPERULA ODORATA L. 38, Warw.; bomb-site, Burman Road, Shirley, 1944-5, L. T. ADAMS.

†306/3. DIPSACUS SATIVUS (L.) Honck. 30, Beds.; Bradger's Hill, Luton, and intermediates with *D. fullonum* L. (*D. sylvestris* (Huds.) Mill.), P. TAYLOR, comm. J. G. DONY.

320/2×3. ×ERIGERON HUELSENII Kern. 15, E. Kent; frequent with the parents, old lime-works by Medway, Burham; 16, W. Kent; Farningham Wood border: chalk waste at Halling: Allington Quarry; all F. ROSE (as *E. acer* × *canadensis*).

†320/3. ERIGERON CANADENSIS L. 33, E. Glos.; G.W.R. Station, Cirencester, H. C. LEACH, comm. W. R. PRICE.

†322/1. BACCHARIS HALIMIFOLIA L. 11, S. Hants; bushes of this introduced species are well established on the shore at Mudeford, 1942, N. D. SIMPSON and N. Y. SANDWITH.

§324/2. FILAGO APICULATA G. E. Sm. *16, W. Kent; border of Farningham Wood, F. ROSE.

353/2b. BIDENS TRIPARTITA L. var. INTEGRA Koch. 41, Glam.; Morpha Pools, Margam, E. VACHELL.

†354/1. GALINSOGA PARVIFLORA Cav. 90, Forfar; weed in a nursery at Barnhill, Dundee, 1942, R. A. Taylor (1945: *Gard. Chron.*, *117*, 61).

†354/2b. GALINSOGA QUADRIRADIATA Ruiz & Pav. var. HISPIDA (DC.) Thell. 21, Middx.; a large patch on waste ground (bombed site) in front of St James' Church, Piccadilly, London, J. P. M. BRENAN.

†355/3. MADIA SATIVA Molina subsp. CAPITATA (Nutt.) Piper in *Contr. U.S. Nat. Herb.*, *11*, 576 (1906); Keck in *Madroño*, *3*, 4 (1935). 34, W. Glos.; bombed site, Welshback, Bristol, 1944, Mrs BELL; 37, Worcs.; on an H.M. Office of Works camp site at Malvern, Aug. 1941, Surgeon Lt.-Commander J. G. MORE NISBETT, R.N.; all comm. N. Y. SANDWITH.

†368/3. ANTHEMIS ARVENSIS L. 39, Staff.; "the only reliable records . . . point to the conclusion that *A. arvensis* is not a native Staffordshire plant, but occurs from time to time as a casual," E. S. Edees (1945: *N.W. Nat.*, *19*, 274).

†381/1. DORONICUM PARDALIANCHES L. 55, Leics.; roadside, near Ulverscroft, 1944, F. A. SOWTER.

§†383/7. SENECIO SQUALIDUS L. *18, S. Essex; near Barking, 1926, Mr Willis: known for some years at West Ham and Forest Gate, in the Wanstead Park district, 1944: plentiful in Overton Drive, Leytonstone, 1944: G. Lister (1945: *Essex Nat.*, *27*, 172).

383/7×10. SENECIO SQUALIDUS L. × VULGARIS L. 21, Middx.; City of London, on bombed site off Fleet Street, E.C., at Serjeants' Inn, 1944, only one plant seen, N. Y. SANDWITH [2893]. 34, W Glos.; bombed site, Bristol Bridge, Bristol, 1944, C. I. and N. Y. SANDWITH.

†383/8. SENECIO VISCOSUS L. 89, E. Perth; on the railway track at Ballinluig and Dalguise, J. A. WHELLAN.

395/2×1. CARDUUS CRISPUS L. × NUTANS L. 36, Heref.; on the limestone of Nash Scar, N.E. of Kington, N. Y. SANDWITH, confirmed by W. A. SLEDGE.

†395/3(2). CARDUUS TENUIFLORUS Curt. 30, Beds.; gravel pit, Eaton Socon, J. G. DONY, det. E. MILNE-REDHEAD.

396/1. CIRSIUM ERIOPHORUM (L.) Scop. 57, Derbs.; two fasciated plants near Castleton, 1944, P. Newton (1945: *N.W. Nat.*, *19*, 179).

†405/19. CENTAUREA MONTANA L. 44, Carm.; naturalised in grassy hedges, between Dewydd and Ffairfach, J. A. WEBB, comm. NAT. MUS. WALES.

†405/31. CENTAUREA SOLSTITIALIS L. 17, Surrey; a casual by Horne aerodrome, J. A. WHELLAN.

421/3. HYPOCHAERIS GLABRA L. 16, W. Kent; border of Farningham Wood: 1945, F. ROSE.

425/1. LACTUCA VIROSA L. 36, Heref.; still in one spot on limestone rocks on the Little Doward, 1944, J. W. GOUGH and N. Y. SANDWITH.

§†425/2. LACTUCA SERRIOLA L. *7, N. Wilts.; Hullavington Station, J. D. GROSE, det. A. J. WILMOTT.

†425/5. LACTUCA DUBIA Jord. 33, E. Glos.; aerodrome, Brockworth, Gloucester, J. W. HAINES, det. J. E. LOUSLEY (as *L. Serriola* L. var. *dubia* (Jord.) Rouy).

†428/1. TRAGOPOGON PORRIFOLIUS L. 2, N. Cornw.; by roadside (near the sea), Port Gavern, B. VERDCOURT.

428/1×2b. TRAGOPOGON PORRIFOLIUS L. × PRATENSIS var. MINOR (Mill.). 15, E. Kent; cornfield, Ramsgate (with *T. pratensis* var. *minor*, the *T. porrifolius* growing in a derelict garden 50 yards away), 1939, F. DRUCE and R. GRAHAM.

435/8. CAMPANULA PATULA L. 43, Radnor; one plant on roadside between Stanner and Dolyhir, J. W. GOUGH and N. Y. SANDWITH.

435/13. CAMPANULA ALLIARIIFOLIA Willd. (=*C. lamiifolia* M.B.). 1, W. Cornw.; railway cutting at Port Isaac Road station. Collected here and identified independently by J. P. M. Brenan at Oxford and H. K. Airy Shaw at Kew. With Mr Brenan I also observed it from the railway carriage in a similar situation at two other localities—one near Liskeard and the other near Lostwithiel. I have seen no record of the occurrence of this striking plant, but can hardly believe that it has not been observed. I understand that it is a native of the Caucasus, and presumably must have been introduced with ballast or something, but there is little doubt that it is spreading along the Cornish railways, N. E. G. CRUTTWELL.

†474/2. BUDDLEIA DAVIDI Franchet. 14, E. Suss.; "a prominent feature of many bombed sites has been the extraordinary widespread

extension to them of Buddleia and its prolific and rapid growth" (*Hastings and E. Sussex Naturalist*, *6*, 171). 35, Mon.; roadside, Undy, A. E. Wade.

§478/4. Centaurium pulchellum (Sw.) Druce. ‡7, N. Wilts.; Spye Park (add to *C.F.* but for previous records see *Journ. Bot.*, 1890 (Rogers and Clarke) and 1904 (Marshall)), J. D. Grose.

480/6. Gentiana anglica Pugsl. 6, N. Som.; Bathford, Mr Lubbock (C. I. Sandwith, 1945: 16).

†490/2. Omphalodes verna Moench. 3, S. Devon; well established in wood near Lindridge House lodge, Miss B. M. Morgan. 69, Westm.; Ladies' Wood, Whitbarrow Lodge, Witherslack, 1944, Margaret Cross (Winifred M. Woodruff, 1945: *N.W. Nat.*, *19*, 178-179).

§†497/2. Symphytum tuberosum L. *33, E. Glos.; Toadsmoor, near Stroud, R. B. Abell.

†497/4. Symphytum peregrinum Ledeb. 33, E. Glos.; Frith Wood, Bussage, Stroud, R. B. Abell. 39, Staff.; "now widely distributed throughout Staffordshire . . . hybrids occur and may be frequent," E. S. Edees (1945: *N.W. Nat.*, *19*, 274). 44, Carm.; lane near Llandebie lime works, J. A. Webb, comm. Nat. Mus. Wales. 45, Pembr.; near Freshwater E., Miss L. Abell.

†498/1. Borago officinalis L. 44, Carm.; near Ferryside, J. A. Webb, comm. Nat. Mus. Wales.

506/2. Myosotis brevifolia C. E. Salmon. 63, S.W. York.; above Peckett Wood, 1943, H. Walsh (1944: *Naturalist*, no. 809, 80).

§†506/7. Myosotis sylvatica (Ehrh.) Hoffm. *44, Carm.; dry grassy ditches near Ffairfach, J. A. Webb, comm. Nat. Mus. Wales.

521/1. Atropa Belladonna L. †21, Middx.; near Chelsea Hospital, 1944, Mrs H. R. Davies (Lousley, 1945 B, 12).

524/1. Hyoscyamus niger L. †18, S. Essex; in some quantity by Barking Power Station and apparently established: also a few plants on waste ground on Plaistow Marsh: J. A. Whellan.

§†532/5. Linaria supina Desf. *10, Wight; stubble field between Apes Down and Carisbrooke, 1933, Mrs Cecil Sandwith.

†537/2. Mimulus moschatus Dougl. 30, Beds.; Side of Great Drakelow Pond, Woburn, E. Milne-Redhead.

§543/2. Veronica hybrida L. ‡41, Glam.; limestone cliffs west of Port Eynon, Gower, 1937, Miss Mitchell and Miss Simpson (specimen drawn by Miss Duncan), 1945, specimen sent to National Museum of Wales and the locality refound by Miss Mitchell and friends. This confirms an old unaccepted record, see Dillwyn, 1848 (*Materials for a Flora and Fauna of Swansea*, p. 43): " *V. hybrida.* In the Swansea Guide said to be found ' on the sides of mountains rare,' but I have no reason to believe that it has been found in this neighbourhood." Watson, in *Top. Bot.* (ed. 1, 1874, and ed. 2, 1883) treats it as " misnomer ?." Riddelsdell (1907: Flora of Glamorgan, in *Journ. Bot.*, *Suppl.*, 48) says: " Reported by S. W. Jenkins from cliffs near Oxwich . . . also by Dillwyn from ' sides of mountains '." Trow (1911: *Flora of Glamorgan*, 121) excludes three old records as errors or aliens. No mention is made of it in Hyde and Wade (1934: *Welsh Flowering Plants*). Although Miss Duncan's drawing was seen by me in 1939, record was withheld for further information because records from Port Eynon are liable to suspicion as being only garden escapes, since several such have occurred there.—E. Vachell.

543/6b. Veronica scutellata L. var. villosa Schum. 25, E. Suff.; Burgate Wood, F. Rose.

§543/9. Veronica aquatica Benq. *63, S.W. York.; by lake in Sandbeck Park, J. Brown, det. A. J. Wilmott.

543/19. Veronica agrestis L. 39, Staff.; formerly described as common, but this " is not true to-day. In the last ten years . . . found only half-a-dozen times . . . a decreasing species," E. S. Edees (1945: *N.W. Nat.*, *19*, 274-275).

†543/41. Veronica filiformis Sm. 1, W. Cornw.; established in a waste corner of Perranzabuloe churchyard and lane outside; also as garden weed at Lambourne Hill, a quarter of a mile away, F. Rilstone, det. A. J. Wilmott. 13, W. Suss.; bank of R. Arun near Houghton Bridge, N. Y. Sandwith. 41, Glam.; grassy verges by Sketty Green, J. A. Webb, comm. Nat. Mus. Wales.

545. Euphrasia. The following are the vice-comital distributions of the species (and their varieties) distinguished by H. W. Pugsley, as given in his *Monograph of the British Euphrasiae* (1930: *Journ. Linn. Soc. Bot.*, *48*, 467-544), and subsequently in various papers and in the Society's Reports. Irish distributions are based on Praeger (1934: *The Botanist in Ireland—Census List*). Numbers in ( ) are records of varieties only. Other earlier records require re-examination.

[1. "*E. stricta* Host—not British.]
2. *E. borealis* Wettst. 11, 13, 33, 34, 39, 41, 42, 45, 48, 49, 52, 55,
58, 62, 64-66, 69, 70, 90, 92-94, 97, 98, 100, 103, 104,
106, 107, 109-112. H. 3, 12, 16, 19, 21, 22, 24, 27, 33

[b. var. *pubescens* Towns.—not recognised by Pugsley.]
c. var. *atropurpurea* Pearsall. 112.
d. var. *zetlandica* Pugsl. 111, 112.
e. var. *speciosa* Pugsl. 111, 112.

3. *E. brevipila* Burn. & Gremli ex Gremli. 1, 3, 4, 6, 9, 10, 22, 23, 29, 33-35, 38-49, 52, 55, 57, 61, 62, 66, 69-72, 75, (76), 78-83, 86-88, (89), 90-92, 95-101, 103-112.—H. 1-3, 5, 7-11, 13-22, 24-31, 33, 36, 38-40.
forma *gracilior* Pugsl. 76, 80, 90, 103.
forma *tenuiformis* Pugsl. 108.
b. var. *subeglandulosa* Towns. 3, 43, 104, 110, ?111.
c. var. *notata* Pugsl. 87-89, 93.
d. var. *reayensis* Pugsl. 109.

[4. *E. suecica* Murb.—not recognised as British.]

5. *E. nemorosa* (Pers.) Löhr. 1, 3-24, 27-37, 39-52, (53), 54-60, (61), 62-64, (65-68), 69-71, 73, (78), (82-85), 90, 93, (95), 97, 100, 101, (104), 106, 109, (110-111) (many of the Scottish records are for the var. *collina*).—H. 6, 9, 10, 13, 15, 16, 19-23, 27, 28, 30, 38-40.
[b. var. *ciliata* Drabble—not separated.]
c. var. *calcarea* Pugsl. 11, 17, 30, 45, 50.
d. var. *collina* Pugsl. 5, 9, 33, 41, 42, 45, 46, 53-56, 61, 62, 64-68, 70, 78, 80, 82-85, 104, 109, 110.
e. var. *sabulicola* Pugsl. 90, 97, 104, 110, 111.
f. var. *transiens* Pugsl. 5, 17, 21, 24, 28, 49, 50.
forma *procumbens* Pugsl. 95, 106.
g. var. *obtusata* Pugsl. 9, 13, 14.
h. var. *imbricata* Callen. 80, 104.

[6. *E. campestris* Jord. and 6b. var. *neglecta* Buckn.—The British plants so named are regarded by Pugsley as of various hybrid origin.]

7. *E. hirtella* Jord. 46-48, (55), 88.—H. 12.
b. var. *polyadena* Pugsl. 46-48, 55, 88.

[8. *E. fennica* Kihlm.—not accepted as British.]

9. *E. curta* (Fr.) Wettst. 3, 4, 6, 10, 41, 44-46, 48, 49, 51, 52, 60, 62, 68, 71, 87, 90-92, 95, 97, 98, 108, 112.—H. 1-3, 8, 9, 12, 16, 17, 20, 21, 27, 28, 36, 38-40.
forma *littoralis* Pugsl. 4, 6, 41, 44-46, 52, 60, 68.
b. var. *glabrescens* Wettst. 3, 23, 44, 97.
c. var. *piccola* Towns. 112.
d. var. *rupestris* Pugsl. 49.

9(2). *E. cambrica* Pugsl. ?42, 49, ?69.
forma *elatior* Pugsl. 49.

9(3). *E. coerulea* Tausch.—not accepted as British.]

10. *E. occidentalis* Wettst. 1-4, 5, 9-11, 14, 15, 34, 41, 45, 46, 49, 52, 57, (61, 62), 69, 71, 97, 107, 108, (111).—H. 2, 5, 6, 12, 16, 20, 38.

b. var. *praecox* Buckn. 2.—H. 12.
c. var. *minor* Pugsl. 2, 45, 71.
d. var. *calvescens* Pugsl. S, 2, 3, 4, 9-11, 34, 45, 61, 62, 71, 97, 111.—H. 16.

[11. *E. septentrionalis* Druce & Lumb.—not distinguished by Pugsley.]

12. *E. frigida* Pugsl. [?65], 72, 88-90, 92, 94, 96-98, 104, 106, 108, (110).
b. var. *laxa* Pugsl. 88, 89, 92, 96, 98, 110.—H. ?1, ?27.

12(2). *E. rotundifolia* Pugsl. 108, 112.

12(3). *E. Marshallii* Pugsl. 74, ?93, 104, 108-112.
b. var. *pygmaea* Pugsl. 111, 112.

12(4). *E. Campbellae* Pugsl. 110.

13. *E. foulaensis* Towns. 96, 104, 108-112.—H. ?27.
forma *condensata* Pugsl. 109, 111, 112.
b. var. *maritima* Pugsl. 108-111.

[14. *E. atroviolacea* Druce & Lumb.—see 18d.]

15. *E. micrantha* Rchb. 1-5, 8, 9, 11, 14, 16, 28, 29, 34, 38, 40, 42, 44, 45, 48-52, 58, 60, 62, 64-67, 69-72, 74, 79, 83, 86-92, 94-112.—H. 1, 6, 7, 9-11, 15-17, 20-23, 27-29, 32, 38-40.
forma *simplex* Pugsl. 3, 4, 69, 72, 94, 108, 110, 111.
[b. var. *Friesii* (Sanio) Druce—not distinguished by Pugsley.]
[c. var. *primaria* (Fries) Druce—not distinguished by Pugsley.]
d. var. *Johnstonii* Pugsl. 110, 111.

16. *E. scotica* Wettst. 46, 48, 49, 52, 62, 64, 66, 69, 70, 72, 86, 88-90, 92, 96-98, 100, 101, 103-106, 108-112.—H. 7, 13, 15, 16, 19-21, 25-27, (28), 31.
forma *estriata* Pugsl. 90, ?111.
b. var. *purpurascens* Pugsl. 86, 88, 101, 106, 109-112.—H. 28.

[17. *E. Lumbii* Druce (*E. variabilis* Druce & Lumb, non Kerner), v.-c. 78, is a mixture of 18 and hybrids, according to Pugsley.]

18. *E. confusa* Pugsl. (mostly as the forma *albida* Pugsl.). 1-11, 13, 26, 27, 40-42, 44-46, 48, 49, 52, 53, 57, 62, 64-66, 68-70, 74, 77, 78, 81, 83, 84, 86-90, 92, 97, 98, 100, 103-105, 107, 108, 110-112.
[b. var. *arbuscula* Buckn., v.-c. 69, = the forma *albida* Pugsl.]
c. var. *maciana* Callen. 87, ?88, 96, 97, 103, 105.
d. var. *atroviolacea* (Druce & Lumb) Pugsl. 111, 112.
e. var. *grandiflora* Pugsl. 104, 107, 111.

19. *E. Rostkoviana* Hayne. 34, 35, (40), 41, 42, (44), 46, 48, 49, 60, 62, 65, 69, 70, (79).—H. 1, 6, 7, 20, 23, 28.
[b. var. *minor* (Gaud.) Druce—not distinguished by Pugsley.]
c. var. *obscura* Pugsl. 40-42, 44, 46, 48, 49, 79.
[d. var. *minoriflora* Borb. H. 9—not distinguished by Pugsley.]

19(2). *E. montana* Jord. 40, 42, 64-66, 69, 70.

19(3). *E. rivularis* Pugsl. 48, 49, 69, 70.
forma *compacta* Pugsl.

19(4). *E. anglica* Pugsl. 1-11, 13, 14, 16-18, 20-22, 27, 28, 34-36, 39-42, 45-48, 55-57, 71.—H. 10, 11, 13-15, 20, 25.
b. var. *gracilescens* Pugsl. 4, 5.

[20. *E. Vigursii* Davey = *E. anglica* × *micrantha*, *teste* Pugsley.]
[b. var. *pallens* Bucknall = a mixture of *E. brevipila* and *E. curta*, *teste* Pugsley.]

21. *E. pseudo-Kerneri* Pugsl. 7, 10, 11, 13-17, 20, 22-30.
forma *elongata* Pugsl. 27, 28.

22. *E. salisburgensis* Funck. [not British].
b. var. *hibernica* Pugsl. 64, 65.—H. 8, 9, 15-17, 26, 28, 29, 33, 34.

§548/1. Rhinanthus major Ehrh. *7, N. Wilts.; cornfield near Norton, J. D. Grose, det. A. J. Wilmott.

550/4. Orobanche major L. 16, W. Kent; one plant (on *Centaurea Scabiosa*) near Trottescliffe ("Trosley"), F. Rose (to whom the last known record for 16 was by Cooper, 1836: *Fl. Metropol.*, 51—as *O. elatior* Sutton).

§558/1. Mentha rotundifolia (L.) Huds. 15, E. Kent; Hothfield Heath: near Park Wood, Molash: 1945, F. Rose. *97, Westerness; Ardnamurchan, near Glenborrodale, probably a relic of cultivation, 1943, R. Graham.

558/1×4. ×Mentha cordifolia (Opiz) Fraser. 98, Main Argyll; Ballachulish, probably (as usually) a relic of cultivation, 1943, R. Graham.

558/3×4. ×Mentha Nouletiana Timb.-Lagr. 97, Westerness; by the shore of Loch Linnhe, south of Fort William, 1943, R. Graham, who adds:—"the exact status of this mint is uncertain: Fraser considered it *M. longifolia* × *spicata*, but Still discarded the name in favour of *excellentiformis* Tr[autv.]—if it is a hybrid it is a remarkably fixed one, apparently always showing the same characters whereby it is easily identified, and it seems truly wild in certain localities."

§558/10. ×Mentha gentilis L. *97, Westerness; Glen Spean: Onich, in a number of complex forms (see *Plant Notes*); 98, Main Argyll; Ballachulish: all 1943, R. Graham (as *M. gentilis* L.).

†566/17. Salvia verticillata L. 34, W. Glos.; Sharpness Docks, Miss L. Abell.

572/1×2. ×SCUTELLARIA HYBRIDA Strail (×*S. Nicholsonii* Lambert). 16, W. Kent; Kilndown Wood (near Goudhurst), F. ROSE.

572/2. SCUTELLARIA MINOR Huds. 97, Westerness; Ardnamurchan, near Glenborrodale, 1943, comm. R. GRAHAM.

573/2. PRUNELLA LACINIATA L. 14, E. Suss.; grassy slope at Cuckmere Haven, (and hybrids with *P. vulgaris*), E. C. E. LEADBITTER.

576/1. MARRUBIUM VULGARE L. 45, Pembr.; Caldey Island, R. B. ABELL.

§577/4. ×STACHYS AMBIGUA Sm. *7, N. Wilts.; Ogbourne Maizey, J. D. GROSE, det. A. J. WILMOTT.

§577/6. STACHYS ARVENSIS L. ‡30, Beds.; Silsoe, H. B. SOUSTER, comm. J. G. DONY (cf. *1943-44 Rep.*, 810).

†579/1. LEONURUS CARDIACA L. 34, W. Glos.; Tortworth, M. PARSONS, comm. [n.d.] W. R. PRICE.

†581/2. LAMIUM MACULATUM L. 30, Beds.; rubbish dump, Luton, H. B. SOUSTER, comm. J. G. DONY. 35, Mon.; hedgebank, Monmouth Cap, S. G. CHARLES, comm. NAT. MUS. WALES. 44, Carm.; hedges near Cynghordy, and near Ashburnham, J. A. WEBB, comm. NAT. MUS. WALES.

§586/3. TEUCRIUM BOTRYS L. *7, N. Wilts.; between Uffcott and Fiddler's Hill, N. PESKETT and J. D. GROSE.

587/2. AJUGA PYRAMIDALIS L. 104, Mid Ebudes; Eigg, abundant on steep dry bank below the eastern precipice of the Sgurr, 1943, R. GRAHAM.

†588/18. PLANTAGO OVATA Forsk. 30, Beds.; rubbish dump. Sundon, J. G. DONY, det with N. Y. SANDWITH and E. MILNE-REDHEAD.

590/1. ILLECEBRUM VERTICILLATUM L. †67, S. Northumb.; on a patch of ground where small trees had been temporarily planted, by the road up to Buckfell plantation, near Falstone, M. PITTAM, det. et comm. J. P. M. BRENAN.—[the specimens were brought to me by my colleague, Mr G. W. Dimbleby, for identification. In a letter from Mr Pittam to Mr Dimbleby, Mr Pittam suggests that the *Illecebrum* was introduced with bundles of trees which had been obtained from various nurseries. *Illecebrum* is said to be plentiful in certain tree nurseries in the New Forest, and the suggested mode of introduction would satisfactorily explain the otherwise very surprising occurrence so far north of this markedly south-western and southern plant)—J.P.M.B.]. Cf. *1943-44 Rep.*, 749—Ed.

†600/26. CHENOPODIUM CARINATUM R. Br. 17, Surrey; abundant near Frensham Pond, G. M. ASH and W. E. WARREN, det. A. J. WILMOTT.

606/2. ATRIPLEX LITTORALIS L. 34, W. Glos.; Severn shore, Lydney—first discovery since Shoolbred first found it in 1895 at Tallards Marsh, opposite Chepstow, where it still is—S. G. CHARLES, comm. W. R. PRICE.

§606/8. ATRIPLEX LACINIATA L. *16, W. Kent; North Beach, Isle of Grain, rare, F. ROSE.

†613/3. SALSOLA PESTIFERA A. Nels. 34, W. Glos.; Sharpness Docks, R. B. ABELL, det. A. J. WILMOTT.

615/1. POLYGONUM DUMETORUM L. 3, S. Devon; roadside banks between Hennock and Ashton, A. E. ELLIS—there is a previous record for v.-c. 3 in *Top. Bot.* on the authority of a catalogue supplied by Dr G. R. Tate but Keble Martin & Fraser in *Fl. Devon*, 1939, 561, say "The records for this species are erroneous."—det. & comm. J. E. LOUSLEY.

615/11. POLYGONUM MINUS Huds. 69, Westm.; sparingly among stones on shore at N.W. end of Grasmere, J. P. M. BRENAN [7209].

618/3×6. RUMEX CRISPUS L. × OBTUSIFOLIUS L. 30, Beds.; Southill Park, E. MILNE-REDHEAD and J. G. DONY, confirmed by J. E. LOUSLEY.

§618/12. RUMEX PALUSTRIS Sm. 21, Middx.; near the canal at Hanwell, 1944, D. H. Kent (Lousley, 1945 B, 12). *35, Mon.; Blackwell Reen, Magor, E. NELMES.

†618/20. RUMEX PATIENTIA L. 21, Middx.; in waste ground in the Isle of Dogs, locally abundant, J. A. WHELLAN, det. J. E. LOUSLEY.

628/5. EUPHORBIA PLATYPHYLLOS L. 17, Surrey; cornfield near Rudgwick, where it has persisted for the last 18 years, R. GRAHAM. 33, E. Glos.; arable field, Ampney St Peter, J. CRIPPS, comm. W. R. PRICE.

§†628/9. EUPHORBIA VIRGATA W. & K. 18, S. Essex; two or three large clumps at Biggin, near Tilbury: and two large patches on waste ground on Plaistow Marsh, J. A. WHELLAN. *34, W. Glos.; Avonmouth Docks, 1936, C I. SANDWITH: Sharpness Docks, Miss L. ABELL.

628/11. EUPHORBIA CYPARISSIAS L. 15, E. Kent; Chilham, on a very wild and unfrequented downland, 1943 and 1945, D. KENT and F. ROSE. †30, Beds.; Tunnel baulk, Wymington, J. G. DONY.

633/3. ×ULMUS HOLLANDICA Mill. 44, Carm.; wood border, Llandyfeilog, J. A. WEBB, comm. NAT. MUS. WALES.

§667/3. EPIPACTIS LEPTOCHILA Godfery. *30, Beds.; Blackgrove Wood, Tilsworth, J. G. DONY, det. V. S. SUMMERHAYES.

668/2. Epipactis Helleborine (L.) Crantz emend. Britt. & Rend. 43, Radnor; damp wood near Siluria, between New Radnor and Dolyhir, C. I. and N. Y. Sandwith.

669/7. Orchis latifolia L. sec. Pugsley. 43, Radnor; Rhos-Gôch Common, J. W. Gough and N. Y. Sandwith, confirmed by V. S. Summerhayes—a form with purplish flowers—not recorded from Radnor in *Welsh Flowering Plants.*

669/7c. Orchis latifolia L. sec. Pugsl., var. coccinea Pugsl. 44, Carm.; dune marsh, Laugharne, 1945, R. B. Abell, det. A. J. Wilmott.

669/7×8. Orchis latifolia L. sec. Pugsl. × praetermissa Druce. 33, E. Glos.; damp meadow, Ampney Park, with both parents, J. Cripps, comm. W. R. Price.

§669/9. Orchis purpurella T. & T. A. Steph. *101, Cant.; J. S. L. Gilmour (1945: 35).

§669/10. Orchis ericetorum (Linton) E. S. Marshall. *101, Cant.; J. S. L. Gilmour (1945: 35).

669/10b. Orchis ericetorum (Linton) E. S. Marshall var. candidissima (Weber) Wilmott. 9, Dorset; by Southern Railway near Corfe Castle, A. Dunston, det. A. J. Wilmott (leaves unspotted, flowers cream coloured).

669/11×10. Orchis ericetorum (Linton) E. S. Marshall × Fuchsii Druce. 33, E. Glos.; damp meadow, Ampney Park; with both parents, J. Cripps, comm. W. R. Price.

669(3)/1. Himantoglossum hircinum (L.) Koch. 30, Beds.; Sundon, Miss M. B. Billington, comm. J. G. Dony.

672/3e. Ophrys apifera Huds. var. Trollii (Hegets. & Heer) Rchb. 11, S. Hants; downs near Droxford (Meon valley), with the normal form of the species, E. H. White, comm. & det. A. J. Wilmott.

673/1. Herminium Monorchis (L.) R. Br. 33, E. Glos.; Withington, Miss L. Abell.

674(5)/2. Platanthera bifolia (L.) Rich. emend. Rchb. 45, Pembr.; King's Moor, Kilgetty, Miss L. Abell (as *Habenaria bifolia*).

†680/1. Sisyrinchium angustifolium Mill. 59, S. Lancs.; a small cluster on sandhills near Freshfield, Formby, Miss C. Fraser, det. & comm. A. J. Wilmott (from C. G. M. de Worms).

†684/2. Narcissus hispanicus Gouan, flore pleno. 44, Carm.; between Henbont and Llannon, J. A. Webb, comm. Nat. Mus. Wales (as *N. major* Curt.)

689/1. Ruscus aculeatus L. 45, Pembr.; near Pembroke, Miss L. Abell.

§691/2. Polygonatum multiflorum (L.) All. *†96, Easterness; shingle of R. Enrick, Drumnadrochit, Miss M. S. Campbell.

694/1. Convallaria majalis L. †38, Warw.; Clowes Wood, Earlswood, L. T. Adams.

†706/4. Scilla hispanica Mill. 44, Carm.; established near Dewydd, J. A. Webb, comm. Nat. Mus. Wales.

§707/2. Ornithogalum umbellatum L. *†90, Forfar; a single plant at Carnoustie, 1943, Doris Parkin (1944: *N.W. Nat.*, *19*, 154).

718/7. Juncus filiformis L. 69, Westm.; rather plentiful on boggy ground at N.W. end of Grasmere, (not recorded from this lake either by Wilson in *Fl. Westmorland* or on the distribution-map of this species by P. W. Richards in *Journ. Ecol.*, *31*, 61, 1943): in fair quantity by the other end (cf. *B.E.C. 1941-2 Rep.*, 506, 1944) of Elterwater, nearest the village, J. P. M. Brenan.

§718/15. Juncus Gerardi Lois. *30, Beds.; gravel-pit, Eaton Socon, E. Milne-Redhead.

§†718/16. Juncus tenuis Willd. *30, Beds.; gravel-pit, Eaton Socon, A. J. Wilmott and J. G. Dony. *52, Anglesey; by track on common, Llanddona, 1937, E. Milne-Redhead [2442]. 69, Westm.; locally plentiful on wet, rather bare, stony tracks, etc., both above and below the Ambleside to Chapel Stile road, above Elterwater village, J. P. M. Brenan.

719/7. Luzula arcuata (Wahl.) Wahl. 92, S. Aberd.; scarce about the summit of Cairn Toul; elsewhere in the Cairngorms fairly common above 4000 ft. descending to about 3200 ft. in the Larig Ghru, 1944, R. Graham.

§722/1. Sparganium neglectum Beeby. *44, Carm.; Felinfoel Reservoir, J. A. Webb, comm. Nat. Mus. Wales.

§723/1. Arum italicum Mill. *8, S. Wilts.; water-meadow, Salisbury, Lt.-Col. C. R. Congreve, det. A. J. Wilmott, comm. J. D. Grose.

737/5. Potamogeton alpinus Balb. 30, Beds.; gravel-pit, Cople, J. G. Dony, det. J. E. Dandy.

§737/9×13[=12]. ×Potamogeton angustifolius Presl. *101, Cant.: in a little loch near Dunmore House, 1944, J. S. L. Gilmour (1945: 36).

745/1b. HELEOCHARIS PALUSTRIS (L.) R. Br. var. MAJOR Sonder. 45, Pemb.; between Tenby and Penally, Mrs F. L. REES, comm. NAT. MUS. WALES.

§746/2. SCIRPUS MARITIMUS L. *30, Beds.; gravel-pit, Eaton Socon, E. MILNE-REDHEAD.

746/8. SCIRPUS PAUCIFLORUS Lightf. 43, Radnor; Rhos-gôch Common, J. W. GOUGH and N. Y. SANDWITH [3036].

§746/14. SCIRPUS COMPRESSUS (L.) Pers. *30, Beds.; The Litany, Totternhoe, V. H. CHAMBERS, det. A. J. WILMOTT--previously noted for Beds. by Abbot in his own annotated copy of *Flora Bedfordiensis*.

747/1. ERIOPHORUM LATIFOLIUM Hoppe. 43, Radnor; Rhos-gôch Common, J. W. GOUGH and N. Y. SANDWITH.

749/2. SCHOENUS FERRUGINEUS L. 89, E. Perth; in view of the apparently inevitable destruction of this plant by the Hydro-electric Scheme, two clumps taken from L. Tummel were planted in small gravelly bogs on Ben-y-Vrackie, one at the side of the path from Moulin at 1400 feet and one about 100 yards east of this, 1945, J. A. WHELLAN. (Details of this transplant are printed for purposes of record, but action is best left to corporate bodies interested in the preservation of this species. Removal to another vice-county is particularly open to criticism.—ED.)

753/10. CAREX PENDULA Huds. 38, Warw.; canal bank, Salter Street, Earlswood, 1944-5, locally abundant, L. T. ADAMS.

753/15. CAREX BINERVIS Sm. 15, E. Kent; The Blean, near Dunkirk, common here on wet moory ground and unrecorded for this part of Kent, F. ROSE.

§753/17. CAREX DISTANS L. ‡63, S.W. York; damp roadside border, Doncaster, S. P. Rowlands (1945: *Naturalist*, 111), det. E. Nelmes, but see Lees (1888: *Fl. W. Yorks*, 471) for previous records.

753/19. CAREX HOSTIANA DC. 43, Radnor; Rhos-gôch Common, J. W. GOUGH and N. Y. SANDWITH, confirmed by E. NELMES.

753/21. CAREX LEPIDOCARPA Tausch. 29, Cambs.; Thriplow Peat Holes, F. ROSE.

753/22. CAREX SEROTINA Mérat. The record in *B.E.C. 1925 Rep.*, 901, of *Carex extensa* var. *pumila* from the Culbin Sands, Elgin, on the authority of Druce, must be deleted, since the specimen in Herb. Druce that is the basis of the above record is *C. serotina*: another gathering in Herb. Druce collected at Findhorn in the same region in 1896, probably by Druce, is also *C. serotina*, misidentified as *C. extensa*. J. P. M. BRENAN (as *C. viridula* Michx.).

§753/23. Carex extensa Good. *35, Mon.; salt-marsh near Magor Pill, E. Nelmes and A. E. Wade.

§753/29. Carex ericetorum Poll. *57, Derbs.; Markland Grips, on Magnesian Limestone, J. Brown, confirmed by E. Nelmes. *63, S.W. Yorks.; Lindrick Common, J. Brown, confirmed by E. Nelmes.

753/31. Carex tomentosa L. 21, Middx., one station near Shepperton has been destroyed, but another one near-by discovered, 1944, J. E. Lousley (1945 B, 13). 33, E. Glos.; dry sloping wood-border just E. of Colesborne, 1941: grassy roadside between Cirencester and Barnsley, 1942: roadside on Akeman Street in several places between Cirencester and Coln St Aldwyn, 1942: at several spots on edges of woods and, many thousands of plants, in wide grassy ride in Oakley Park, 1½ m. S.W. of Cirencester, 1942: roadside about 1 m. S.W. of Duntisbourne Abbotts, 1943: roadside on Baunton Downs, near the Foss Way, between Baunton and Calmsden, 1943: E. Nelmes.

753/39. Carex rariflora Sm. 89, E. Perth; near the source of the Caochan Lub, north of Bruar Lodge, 1944, R. Graham.

753/57×59. ×Carex axillaris Good. 33, E. Glos.; Newtown, Tewkesbury, C. W. Bannister, comm. W. R. Price.

753/58. Carex canescens L. 24, Bucks; still survives at Black Park (Langley), the only locality in the v.-c. (reported in *Fl. Bucks.* as probably extinct), F. Rose (as *C. curta* Good.).

§753/59(2). Carex vulpina L. This species has been recorded in the Reports (see *1939-40 Rep.*, 263→) for the following vice-counties: 13, 14, 16, 33, 34. Add to *C.F.* *15, E. Kent; Orlestone, in woods on Weald Clay, by roadside ditch, with *C. Otrubae* Podp.), F. Rose. *63, S.W. York; near Thorne, J. M. Taylor and S. F. Rowlands (1945: *Naturalist*, 131-132).

*753/61(2). Carex polyphylla Kar. & Kir. *57, Derbs.; in three places in Alport and Lathkill Dale area, J. Brown, det. E. Nelmes.

†756/2. Setaria viridis (L.) Beauv. 30, Beds.; Biggleswade: Eaton Socon: J. G. Dony, det. C. E. Hubbard.

758/3. Spartina Townsendii H. & J. Groves. †34, W. Glos.; one plant in mud on Severn shore, Hock Cliff, Frampton; the farthest record up the Severn so far made, W. R. Price.

†765/2. Phalaris bulbosa L. 30, Beds.; Old Warden, E. Milne-Redhead and J. G. Dony, det. C. E. Hubbard (as *P. tuberosa* L.) (first record for the v.-c.).

783/4. CALAMAGROSTIS NEGLECTA (Ehrh.) Beauv. 88, M. Perth; in marsh at head of Loch Tummel in fair quantity (unsuccessfully sought in old station at head of Loch Tay), J. E. RAVEN.

785/1. APERA SPICA-VENTI (L.) Beauv. 18, S. Essex; on sandy ground on Wanstead Flats, a few plants only, J. A. WHELLAN.

†794/1b. AVENA FATUA L. var. PILOSA Syme. 30, Beds.; Tilsworth, J. G. DONY, det. C. E. HUBBARD.

†794/1d. AVENA FATUA L. var. PILOSISSIMA S. F. Gray. 30, Beds.; Harlington, J. G. DONY, det. C. E. HUBBARD.

795/2. ARRHENATHERUM TUBEROSUM (Gilib) Druce. 20 [Beds.]; Kensworth, J. G. DONY, det. C. E. HUBBARD. 30, Beds.; Slip End, Caddington, J. G. DONY, det. C. E. HUBBARD—recorded for v.-c. 30 in *C.F.* but no previous record known.

†808/1. CYNOSURUS ECHINATUS L. 16, W. Kent; abundantly naturalised on a chalky roadside bank near Halling, J. A. WHELLAN.

809/1. KOELERIA GRACILIS Pers. 39, Staffs.; Blare: Swinscol: limestone pasture, 1942, E. S. EDEES [2549].

809/3. KOELERIA BRITANNICA (Domin) Druce. 45, Pemb.; near Tenby, R. B. ABELL, det. C. E. HUBBARD (as *K. gracilis* var. *britannica* Domin).

822/1. BRIZA MEDIA L. 38, Warw.; Tidbury Green, Shirley, very local, L. T. ADAMS.

§†824/1. POA CHAIXII Vill. *104, Mid Ebudes; Rhum—abundant in one of the woods of the Kinloch area, R. B. Cooke and H. H. C. (1944: *Vasc. subst.*, *19*, 31).

824/5. POA PALUSTRIS L. 17, Surrey; bed of Fetcham Mill-pond, 1944 (Lousley, 1945 B, 12); †21, Middx.; top of air-raid shelter in Hyde Park, 1944, W. J. L. Sladen (Lousley, 1945 B, 12).

825/2b. GLYCERIA FLUITANS (L.) R. Br. var. TRITICEA (Fr.) M. T. Lange. 33, E. Glos.; roadside, Hucclecote, Gloucester, J. W. HAINES.

§825/3(2). GLYCERIA DECLINATA Bréb. *18, S. Essex; plentiful by a pond at Woodford, J. A. WHELLAN. 27, E. Norf.; abundant in village pond on gravelly substrate (pH 6.6: colorimetric), Lingwood, associated with *Glyceria maxima*, *Ranunculus sceleratus*, *Bidens cernua*, and *Elodea canadensis*, J. M. LAMBERT. 43, Radnor; margin of Llyn Hilyn, c. 1200 ft., N. Y. SANDWITH. *106, E. Ross; near Kilmuir, Black Isle, in salt marsh by sea-shore, 1942, U. K. DUNCAN, confirmed by C. E. HUBBARD.

825(2)/2×6. ×PUCCINELLIA PSEUDOPROCUMBENS (Corb.) Wilmott. 16, W. Kent; in some quantity with the parents, on canal bank near Gravesend Gas Works, F. ROSE (as *P. distans* × *rupestris*).

826/15. FESTUCA MEMBRANACEA (L.) Druce. 15, E. Kent; Dungeness, F. ROSE (as *F. uniglumis* Sol.).

826/16. FESTUCA AMBIGUA Le Gall. 15, E. Kent; Brabourne Lees: near Ashford Warren: abundant near Leeds: Willesborough, F. ROSE. 16, W. Kent: Wrotham Heath: Ryarsh sand pits, F. ROSE.

†827/1(2). BROMUS GUSSONEI Parl. 33, E. Glos.; Fiddington, near Tewkesbury, C. W. BANNISTER, comm. W. R. PRICE.

827/5. BROMUS MADRITENSIS L. 45, Pemb.; on base of Pembroke Castle, R. B. ABELL, det. C. E. HUBBARD.

†827/16. BROMUS SECALINUS L. 34, W. Glos.; Purton near Severn Bridge, S. G. CHARLES, comm. W. R. PRICE.

827/18. BROMUS RACEMOSUS L. 15, E. Kent; marsh at Brooke (near Wye), F. ROSE.

827/19(2)(=30). BROMUS LEPIDUS Holmberg. 15, E. Kent; Chilham Downs (in a wild spot), F. ROSE. 16, W. Kent; Snodland (roadside below downs): Trottescliffe (" Trosley "): Green St Green (Darenth), F. ROSE. 33, E. Glos.; plentiful in rye and clover field, Fiddington: at Natton and Aston Fields near Ashchurch: in meadows by Tewkesbury Abbey: hills above Prestbury, Cheltenham: C. W. BANNISTER, comm. W. R. PRICE. ‡34, W. Glos.; road near Severn Bridge Railway Station, S. G. CHARLES, comm. W. R. PRICE (see *1932 Rep.*, 362, for previous record). *56, Notts.; Misterton, 1937, Mrs C. I. SANDWITH and J. P. M. BRENAN, confirmed by C. E. HUBBARD.

†829/2. LOLIUM TEMULENTUM L. 89, E. Perth; not plentiful, but apparently well established in roadside grass between Pitlochry and Moulin, J. A. WHELLAN.

830/4f. AGROPYRON REPENS (L.) Beauv. var. GLAUCUM Doell. 34, W. Glos.; road near Severn Bridge Railway Station, S. G. CHARLES, comm. W. R. PRICE.

§848/1. ADIANTUM CAPILLUS-VENERIS L. [*48, Mer.; on calciferous lava near Llyn Gafr and in Cwm Aran, identification confirmed at Kew, but not refound and " the record must rank as unconfirmed," E. Price Jones (1945: 176-177).]

§851/9. ASPLENIUM SEPTENTRIONALE L. *67, Northumb., S.; bare dry rock at Beldon, above Blanchland, Rev. R. Featherstonhaugh, 1892 —cited by J. W. H. Harrison (1945: *Vasc. Subst.*, *30*, 39).

†855/1. Onoclea sensibilis L. 69, Westm.; a few tufts growing in a dense mat of dead stems of *Phalaris arundinacea* on marshy ground with *Salix atrocinerea* trees, near the shore of Rydal Water, J. P. M. Brenan, confirmed by A. H. G. Alston.

856/4b. Dryopteris aristata (Vill.) Druce var. tanacetifolia (DC.) Druce. 34, W. Glos.; Sutton Ponds, Lower Soudley: brook below Buckstone, Staunton: S. G. Charles, comm. W. R. Price (first record of var. in county).

856/5. Dryopteris aemula (Brackenr.) Kuntze. 14, E. Suss.; Chiddingly Rocks; 16, W. Kent; Ashour Wood, east of Penshurst: ravine at Kipping's Cross; all F. Rose, confirmed by A. H. G. Alston.

856/7. Dryopteris Oreopteris (Ehrh.) Maxon. 16, W. Kent; several clumps in a wood near Dartford (for many years not seen in N.W. Kent), 1945, F. Rose, confirmed by A. H. G. Alston.

856/9. Dryopteris Phegopteris (L.) C. Chr. 14, E. Suss.; still in some quantity near Forest Row, reported in *Fl. Suss.* as extinct there, F. Rose (as *Phegopteris Polypodioides* Fée.).

859/1. Ceterach officinarum DC. 49, Carn.; church wall, Capel Curig, Miss W. Frost, comm. A. J. Wilmott.

§868/1. Azolla filiculoides Lam. ‡58, Ches.; known for several years (since 1939) in pond near Chester (*N.W. Nat.*, *18*, 326-327) and found (1944) in another pond a mile away, E. G. Williams (*N.W. Nat.*, *19*, 303).—add to *C.F.*

870/5. Lycopodium clavatum L. 89, E. Perth; with single-spiked inflorescence by the Caochan Lub, near its source north of Bruar Lodge, 1944, R. Graham.

870/6. Lycopodium inundatum L. 11, S. Hants: very abundant by Wilverley Bog, F. Rose.

118. CHARACEAE. All the following records are " det. & comm. G. O. Allen."

872/2. Nitella opaca Ag. H.29, Leitrim; Lough Melvin, 1938, J. P. M. Brenan and N. Douglas Simpson—in the f. *conglobata* (vide Migula 1890: *Die Characeen*, fig. 35), small much branched, having small globular distant whorls with very incurved branchlets and dactyl apices markedly obtuse, in general appearance not unlike a *Tolypella*, G. O. Allen.

872/2c. Nitella opaca Ag. var. brachyclema Gr. & B.-W. H.35, Dongl., W.; Lough Kindrum, 1939, J. P. M. Brenan and N. Douglas Simpson.

872/9. NITELLA BATRACHOSPERMA (Rchb.) A. Br. H.35, Dongl., W.; Lough Mullaghderg, 1938, J. P. M. BRENAN and N. DOUGLAS SIMPSON.

876/3b. CHARA VULGARIS L. var. LONGIBRACTEATA (Coss. & Germ.) Kütz. 52, Anglesey; pool near Arthur's Table, 1937, H. K. AIRY SHAW and N. DOUGLAS SIMPSON.

876/3c. CHARA VULGARIS L. var. PAPILLATA Wallr. 54, N. Lincs.; drain near "The Poplars," south of Stickford, N. DOUGLAS SIMPSON, comm. G. O. ALLEN.

876/7b. CHARA CONTRARIA Kütz. var. HISPIDULA A. Br. H.34, Dongl. E.; Lough Shannagh, 1938, J. P. M. BRENAN and N. DOUGLAS SIMPSON [38.914].

876/12c. CHARA ASPERA Willd. var. LACUSTRIS H. & J. Groves. H.39, Antrim; Lough Neagh, near the Three Islands, 1938, J. P. M. BRENAN and N. DOUGLAS SIMPSON [38.758].

876/16. CHARA GLOBULARIS Thuill. 35, Monm.; R. Wye between Monmouth and Redbrook, 1944, R. LEWIS [903].

876/17c. CHARA DELICATULA Ag. var. ANNULATA (Wallm.) Gr. & B.-W. H.29, Leitrim; Lough Drumcong, 1939, J. P. M. BRENAN and N. DOUGLAS SIMPSON [39.1063]. H.32, Monaghn; Lough Annaghmakerig, 1939, J. P. M. BRENAN and N. DOUGLAS SIMPSON [39.1062]. H.34, Dongl. E.; Lough Kindrum, 1938, J. P. M. BRENAN and N. DOUGLAS SIMPSON [38.905, a & b].

THE STABILITY OF RUBUS SPECIES

F. Rilstone, A.L.S.

In his review of "Quidam Rubi Cultorum" by L. H. Bailey, Rev. H. J. Riddelsdell stated (1924: *Journ. Bot.*, 83-86):—"Visiting sometimes identical bushes in succeeding years, I am beginning to suspect that forms are actually changing from year to year. . . . My belief is that *Rubus* is, even in this way, a rapidly developing genus, and that variations are often due to an inherent fluidity which arises from some unknown source entirely independent of "crossing"; and that such fluidity frequently finds largely increased scope in new surroundings."

In "Bristol Botany in 1924" Mr J. W. White comments on this:—"The suggestion that variations in the genus may be often due to an inherent fluidity which arises from some unknown cause independent of crossing, and that forms are actually changing from year to year, well expresses what has long been a supposition of my own. For I can conceive no more likely explanation of peculiar loss of recognised varieties and the appearance of others in our own area."

Such views are, I believe, rather widely held, but my experience has been of so entirely contrary a character that it may be well to set out the facts as I have found them. It should be stated that I have had the advantage of living all the year round in a good bramble district and so have been able to know and to keep under observation *all* the forms over a limited area, and I am convinced that it is only of such an area, more or less thoroughly known, that one can speak with any confidence. An area only partially known will certainly harbour overlooked forms which, when at last they are found, may easily be taken for new arrivals.

The plants in my own neighbourhood, some of them well-known species such as *R. griseoviridis*, others equally well-marked but with names as yet unpublished, have been studied by me for nearly thirty years and none of them has changed in the slightest except in the natural response to environment. Many species, indeed, have a considerable range of variation due to conditions of growth. The "Cornish bramble," the distinct species hitherto known as var. *cornubiensis* of "*R. nemoralis*," is in sheltered situations a tall large-leaved plant with smooth leaflets with comparatively little felt and large broad panicles but on dry sunny banks it has a low growth, small highly plicate and heavily felted leaflets and small dense panicles and looks very different.

There is also in some bramble species a certain variability of form and clothing which may or may not be due to instability of characters but is a persistent characteristic of the species and not at all a sign of changing type. Such is the production by *R. cryptadenes* Sudre (*R. argenteus*) of abnormal lax panicles with long slender pedicels.

It is not always realised that individual bushes and clumps of brambles are very long-lived. Most of those I first studied nearly thirty years ago are still flourishing and it happens that my recollection of still existing clumps of two species go back more than fifty years. These are *R. Rilstonei* Bart. & Ridd., outstanding because of its early fruiting (it has provided many blackberry pies in this locality during late July of this year—1945), and *R. pydarensis* Rilst. because of the globular juicy fruits of few drupelets. Bramble bushes occasionally disappear through being dug out and destroyed or being crowded out by other growth, but in general changes are few and slow. Investigation over several years has, however, shown that all the species, named and un-named alike, are renewed by seedlings. Two species, *R. rusticanus* and *R. Rilstonei*, produce seedlings in abundance, the others more sparingly. Most of the seedling plants observed have been in garden plots and in fields where sooner or later they are sure to be destroyed by cultivation, but some succeed in gaining a footing in the hedges.

One is sometimes tempted to consider that what seem to be " local " species of very restricted range are of recent origin but such speculations are probably very unsafe. Such " local " species have a way of turning up in remote districts. Thus when *R. cinerosiformis* was published by the present writer it was known only from a stretch of country about seven miles wide in East Cornwall. It has since been seen from the Fal valley and from Devon—a seventy mile stretch. A distinct but as yet un-named species which has been recorded as *R. curvidens* was at first known only from some miles west and south from Liskeard but a gathering from Devon was included among some brambles sent me for examination by Dr Fleming a year or two ago. Other similar instances might be cited; it is evidently unsafe to assume that any apparently local form is really confined to a small area.

A possible explanation of Mr White's impression that the actual species of a locality vary from year to year is that he did not realise how " patchy " is the local distribution of *Rubus* species, and that unless he was quite sure of visiting the precise spot he might well find a different assortment. For example, the fields within a 500 yard radius of my house do not contain a single plant of any of three species which are plentiful on the other side of the hill barely half a mile away.

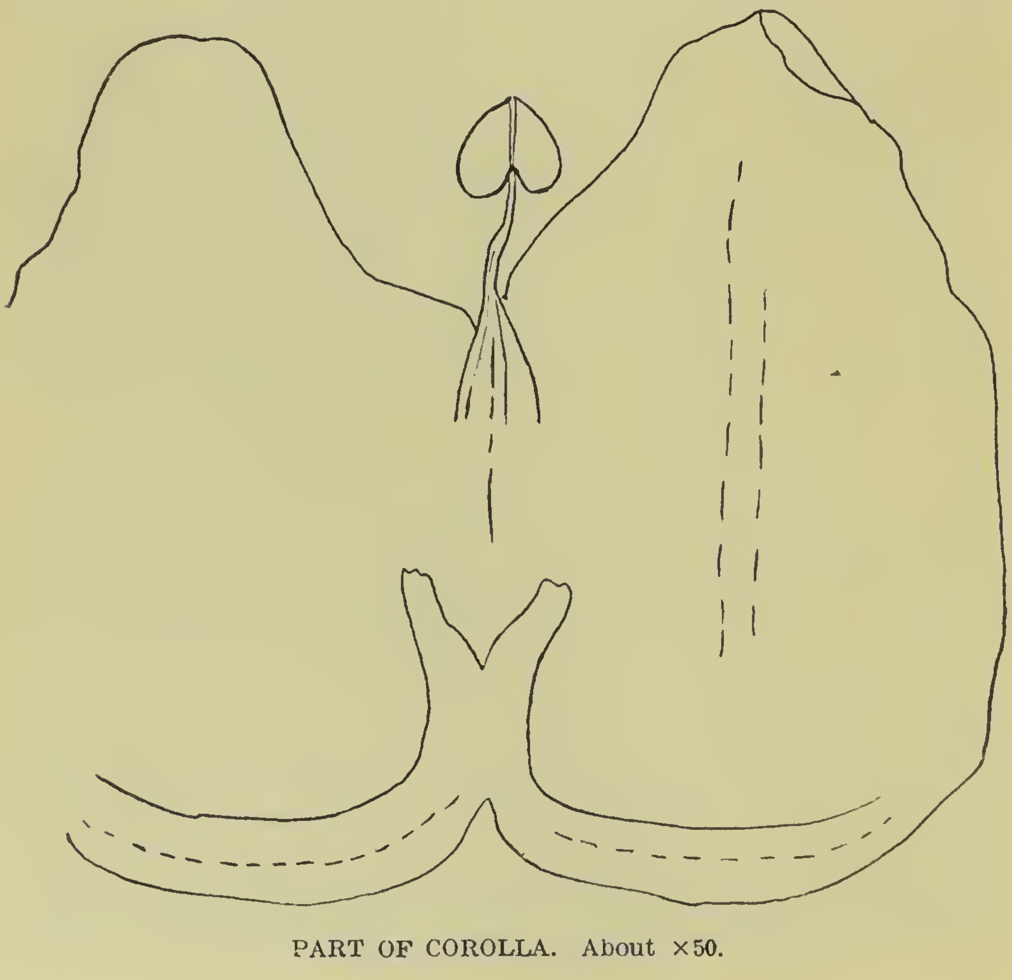
My experience is that even what seem to be brambles of limited local occurrence have numerous individual bushes and judging from the known fact that some such occur in distant localities they would seem to be remnants of former populations rather than newer species. But in all areas, apparently, there is a sprinkling of solitary bushes or clumps no one of which can be matched in its vicinity. Some such are plainly intermediate between neighbouring species and are pretty certainly first crosses. Of others the parentage is not so obvious and it i tempting to fall back on the theory of " fluidity " but continued study brings the impression that all are probably hybrids of the first (and probably final) generation. Some such I have had under observation for many years but have never seen a seedling.

To conclude, I do not presume to assert that new forms do not arise as " sports "; it may well be that they do. I merely place on record that I have closely observed the brambles over one small area of Cornwall for more than a quarter of a century and have seen no change in the character of the plants.

A NOTE ON CUSCUTA EUROPAEA L. VAR. NEFRENS FRIES

BERNARD VERDCOURT, B.Sc.

Fries (1846: *Summa Veg. Scand.* (sect. prior) 11 (*nomen nudum*), 191, in obs.) proposed this name for a variant of *Cuscuta europaea* which he distributed in his *Herbarium Normale.* The label with the specimen in the Kew Herbarium reads "*Cuscuta* (*europaea*) *nefrens* Fr. B.N." There is a pencil note on this sheet by G. Engelmann—"has certainly scales in the corolla." Engelmann (1859: *Trans. Acad. Sci. St Louis, 1,* 468) in his monograph of the genus states that all the specimens reputed to belong to this variety which he had examined did bear at least traces of scales. The B.N. on the herbarium sheet stands for "*Botaniska Notiser*" but the writer has had no opportunity of seeing the early volumes of this. W. C. Areschoug (1853: *Revis. Cuscutarum Sueciae*—reviewed in *Bot. Not. f. 1853,* 132-141) mentions the *Herbarium Normale* specimen and states that it was found on *Vicia*



PART OF COROLLA. About ×50.

sativa near Warberg and also that all specimens which he had seen did bear scales. The writer can confirm the presence of quite normal scales in Fries's specimen at Kew. Despite the fact that this variety was shown to have been imaginary it was recorded several times for Britain in later years and is still mentioned in several modern European Floras. The writer has examined as many sheets of the so-called variety as could be found and notes are appended on these.

Dodder scales are frequently difficult to see, especially in herbarium material, and this is particularly the case with *Cuscuta europaea* where the scales are small and lie very flat. The method of examination employed is therefore described. Flowers are softened either by soaking in 50% glycerol for several days or by boiling in water for a few seconds. Corollae are removed, opened, and examined prior to dehydrating and mounting. It is useless to try and observe scales in mounted corollae and the best method is to lift up the scales with a fine needle using unmounted corollae viewed with oblique top illumination under a binocular microscope. With care individual scales may be separated and mounted.

The following British records have been examined. Only one of these would appear to have been published (Syme, J. T.; 1866: *Eng. Bot.*, ed. 3, *6*, 90) as far as the writer is aware. Syme gives the locality as Thirsk in Yorkshire. Specimens of the gathering on which this record is undoubtedly based are in the Watson Herbarium at Kew and the Syme Herbarium. The sheets bear the following data—" In a Forage field between Thirsk and Kirby Knowle in August 1861." The labels also bear the name of J. G. Baker and the Thirsk Natural History Society. These specimens definitely bear scales in the corolla (Fig. 1) though these are a little smaller than usual. Naturally, in accordance with the normal laws of individual variation, the size of scales varies within certain limits. The rest of the records are taken from herbarium sheets in various British Herbaria.

British Herbarium of the British Museum (Nat. Hist.):—

1. Railway bank near Hasthwaite Station, North Yorks., 25.ix.1908. Coll. T. J. Foggitt—labelled *Cuscuta trifolii*, but this crossed out and replaced by *europaea* var. *nefrens* Fries. The specimen is not *europaea* but a form of *C. epithymum* Murr.

Druce Herbarium, Oxford:—

2. Kelso. On *Vicia*, 1877. This is *europaea* with larger scales than usual!
3. Blacklaw Edge, Roxburgh. On *Vicia*, Aug. 1875, var. *nefrens* fide Syme (two sheets). Definitely contains scales within corolla.

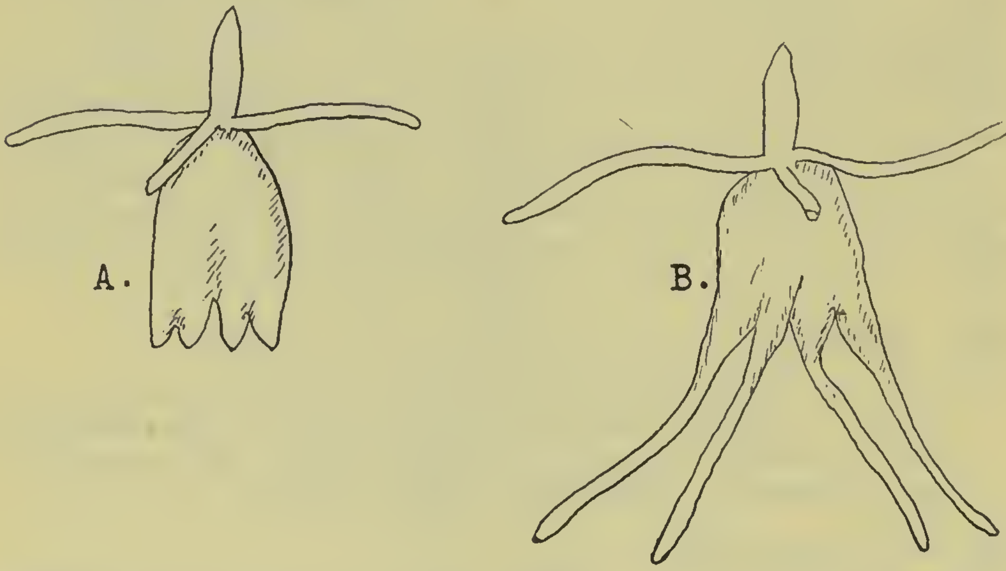
The variety should therefore be deleted from Druce's *British Plant List*, ed. 2, (515/2b.).

The writer is indebted to Mr Airy Shaw, Mr Wilmott, and Mr Chapple for their kind help.

ORCHIS LATIFOLIA L. OR O. INCARNATA L.?

I. P. Vermeulen.

Mr Pugsley in his article "On some Marsh Orchids" (*Linn. Soc. Journ. Bot.*, xlix (1935), p. 553) argued that the plant that had been called *O. incarnata* L. for the last century, should really bear the name of *O. latifolia* L. As far as I can gather, his view has generally been accepted in England. Not, however, on the continent. Dr Mansfeld, in his: "Zur Nomenklatur der Farn—und Blütenpflanzen Deutschlands," II, in *Fedde Repert.*, xlv (1938), suggested to drop the name *O. latifolia* L. as a *nomen ambiguum* and to use *O. strictifolia* Opiz for *O. incarnata* L. His view has been accepted in Germany as well as in Scandinavia. The reason why Mr Pugsley's change of names so readily found acceptance in England has probably lain in the fact that the plant that was called *O. latifolia* (*O. majalis* Rchb.) before 1935 is not found there. Consequently there was only one change in England, whereas on the continent, of two common species, A was to be called B in future and B was now called C. This causes a hopeless confusion, the more so as the old and new flora-editions are continually being used side by side, in which A is still A and B still B.



P.V., 1946.

TUBERS OF ORCHIS SAMBUCINA (A) AND O. INCARNATA (B).
A = Orchis bulbis subpalmatis.
B = Orchis bulbis palmatis.

On close study of Mr Pugsley's argument, however, I found some weak points in it, which have led me to the conclusion that his view is not the right one. Briefly (I hope to give a detailed argument soon) my objections come down to the following:

In *Hortus Cliffortianus* (1737) Linnaeus described one single species of subgenus *Dactylorchis* as *Orchis radicibus palmatis*, etc., which plant was *O. incarnata* according to modern views.

In *Öländska och Gothländska Resa* (cited as It. Oel.) the account of a journey to these two islands in 1741 (published in 1745) we come across the following report of 2nd June 1741 (p. 48) (rendered in Engl.):

> Orchis bulbis subpalmatis rectis, nectarii cornu conico: labio trilobo integerrimo, bracteis flore longioribus, *which is generally called*: Orchis palmata Sambuci odore, *varying with red, white or rust-coloured flowers.* *Tuber* palmate, oval hardly digitate, straight, elongated downwards. *Leaves* unspotted. *Bracts* as long as the corolla. The three sepals spreading, the two petals forming a hood; *lip* three-parted, slightly notched, the mid-lobe being narrower but not shorter. *Spur* as long as ovary, obtuse.
>
> *Orchis*, bulbis palmatis patentibus, nectarii cornu germinibus breviore: labio crenato, (petalis) dorsalibus patulis, *generally called*: Orchis palmata maculata. Differs from plant just mentioned by bracts being shorter, lip three-lobed notched: mid-lobe much smaller. Lateral sepals spreading, not reflexed as in the plants mentioned above. *Tubers* more widely spread and scattered and digitate.
>
> Orchis palmata palustris non maculata *differs from* maculata *in this respect*, that the two lateral sepals were reflexed, whereas in maculata they are straight and spreading. The lip is but slightly incised and the side-lobes less reflexed; stem shorter, flower-spike rough and bracts longer than flowers. It does not differ quite so much from Orchis odore Sambuci, but the spike is denser and the roots are more widely spread.

So we see that here Linnaeus found *O. sambucina* L., *O. maculata* L. and *Orchis palmata palustris*, which was a synonym of his *O. radicibus palmatis*, i.e. *O. incarnata* L. In the Index of the itinerary Linnaeus mentions two plants only, *O. sambucina* and *O. basilica* (=*O. maculata* L.).

On p. 15 sub no. X of *Act. Soc. Upsal.*, 1740 (published 1744) Linnaeus then describes: "*Orchis bulbis subpalmatis rectis, nectario cornu conico: labio trilobo integerrimo, bracteis flore longioribus.*" This then is not the third species found in Rella, but the first, later distinguished as *O. sambucina*, whereas *O. radicibus palmatis*, the plant of the Hort. Cliff. is cited as the first synonym. The tuber of *O. sambucina* especially shows a typical difference with *O. incarnata*, the fingers being very short, hence "*subpalmatis*," instead of "*palmatis*" of *O. incarnata* (Fig.). This proves, that Linnaeus had *O. sambucina* in his mind now, and he forgot all about the third plant from It. Oel.

In 1745 Linnaeus's Flora Suecica was published; no wonder that there too the diagnosis quite agrees with that of *O. sambucina* from It. Oel. After the synonym from the Hort. Cliff. another follows from the German A. von Haller and then comes *O. palmata pratensis latifolia longis calcaribus Bauhin*, derived from Dodoens's *Satyrium basilicum primum*, which plant might be *O. praetermissa* or *O. incarnata* according to Mr Pugsley (*l.c.*, p. 555) but which I rather suppose to be an *unspotted O. majalis.*

Again it is not to be wondered at that *O. latifolia* L. from *Spec. Plant.* (1753), vol. ii, p. 941, shows almost the same diagnosis; only the lip is now described as follows: "*labio trilobo lateribus reflexo*" but even that characteristic also occurs with *O. sambucina.* The fact that *Orchis palmata sambuci odore* is mentioned as var. shows how little Linnaeus then mastered this group. Fries is certainly right, when he says (*Nov. Fl. Suec. Mant. tertia* (1845), p. 128) that Linnaeus mistook *O. incarnata* for *O. sambucina*, but apparently Mr Pugsley overlooked this.

Also in *Fl. Suec.*, ed. ii (1755), the diagnosis of *O. latifolia* remains unchanged, but in an addition at the end the leaves are now described as spotted, evidently a change that is based on personal observation and not on the study of literature, for now we also find descriptions of *O. incarnata* and *sambucina* besides that of *O. latifolia.* The description of *O. latifolia* makes an half-hearted impression, for it shows a plant that has the tuber of *O. sambucina* and possesses spotted leaves, which occur neither with *O. sambucina* nor with *O. incarnata.* Consequently it is parts of different plants that are made here into one "species" and this proves that *O. latifolia* is a *nomen confusum* according to modern nomenclature (*Intern. Rules Bot. Nom.*, 3rd ed. (1935), art. 64).

After this "*latifolia*" we find the following diagnoses in the same work:

> NO. 802 Orchis (*incarnata*) bulbis palmatis, nectarii cornu conico; labio obscure trilobo serrato, petalis dorsalibus reflexis.
>
> Orchis palmata lutea, floris labio maculato. Segu. veron. 3, p. 249, t. 8, f. 5.
>
> Habitat *in Pratis rarius.*
>
> Praecedenti simillima, a qua differt: Foliis pallide viridibus immaculatis; nec saturate viridibus maculatis. Caule dimidio breviore. Bracteis vix flore aut germine longioribus. Corollis pallide incarnatis; nec rubris. Petalis 2 dorslibus totaliter reflexis; nec tautum patulis, nec maculatis; Nectarii labium structura convenit.
>
> NO. 803 Orchis (*sambucina*) bulbis subpalmatis rectis, nectarii cornu conico, labio ovato subtrilobo, bracteis longitudine florum.
>
> Orchis palmata, sambuci odore, floribus exalbidis. Tourn. inst. 435.
>
> Orchis ornithophora candida. Chahr. sciagr. 249.
>
> Orchis palmata, sambuci odore. Bauh. pin. 86, Rud. elys. 2, p. 213, f. 9.

Orchis foetida sylvatica praecox, flore albo barba luteola, Hall. rupp. 297.

Orchis pannonica viii Clus. hist., 1, p. 269.

Orchis palmata, sambuci odore, floribus purpureis. Tourn. inst. 435.

Habitat, etc.

Radix bulbis subpalmatis, rectis nec divaricatis, oblongis, apice in duos digitos bifidos divisis. Gemma squamis tribus. Caulis vix spithamaeus, pallide viridis, teres. Folia alterna, lineari-lanceolata, obtusiuscula, basi vaginantia, pallide viridia, immaculata, obsolete nervosa, vix ultra 4 s. 5, a basi ad medium cauli inserta. Flores in spicam subovatam caulis apici angulato insidentes, communiter septem. Bracteae lanceolatae, carinatae, flore non longiores, marginibus basin recurvatis. Germen angulatum & contortum. Petala 3 dorsalia patula, quorum lateralia omnino reflexa; 2 interiora conniventia in Fornicem. Nectarii labium ovatum, raro cordatum, versus apicem trilobum: intermedio lobo paulo productiore & obtuso. Cornu nectarii gibbum s. crassiusculum, obtusum, longitudine fere germinis. Color corollae flavescenti-exalbidus, labio pallide flavo ad basin punctis oblongis s. lineolis longitudinalibus interruptis purpurascentibus notato. Variat etiam Floribus livide purpureis.

Planta obscura, etc.

From the description of the tuber forms of these species we understand at once that these two cannot be synonymous and besides it shows what Linnaeus means by a *bulbis subpalmatis*: a tuber such as is found with *O. sambucina*. But what makes Linnaeus use Seguier's *Orchis palmata lutea* as a synonym of *O. incarnata*, when it is now generally understood that this is the yellow-flowering variety of *O. sambucina?* He was probably misled by Seguier's description of the plant with palmate, not with subpalmate, tubers, so it was perhaps a yellow-flowering *O. incarnata* in the sense of Linnaeus. Perhaps Linnaeus understood *lutea* as an adjunct to tuber, and not to the colour of the flower. Against the diagnosis of *O. incarnata* it might be argued that the plant was described with short bracts, but this form is actually found in Sweden, as I gathered from Swedish herbarium material.

Moreover there is a plant in Linnaeus's herbarium in London, which was there in 1767 and was determined by Linnaeus himself, and which is undoubtedly a real *O. incarnata* according to views held before 1935. (Cf. Stephenson, *Journ. of Bot.*, Nov. 1923). The specimen of *O. latifolia* L. from Linnaeus's herbarium is not a clear specimen of the species, according to Mr Pugsley, for " *its condition is too poor for the accurate determination of its features* " (*l.c.*, p. 563). The habit itself is not typical either. How else can it be explained that English botanists (Stephenson, Godfery!) did not recognize this specimen as *O. incarnata*?

Haller's criticism (Act. Helvet., iv (1760)) probably induced Linnaeus to take away the spotted leaves from *O. latifolia* in Spec. Plant., ed. ii (1762-1763), but again the diagnosis of this species is not changed.

The great change comes in 1771, in Linnaeus's *Mant. Plant. altera*, after the publication of Haller's *Hist. Stirp. Helvet.*, ii (1768), where on plate 32 a very fine illustration of *O. majalis* is given. Then Linnaeus evidently saw that his *O. latifolia* was an absurdity, a collection of diagnoses made at different times of different species, and Linnaeus is converted to Haller's view. He entirely changes the diagnosis and adopts that given by Haller and also cites the plate 32 in his diagnosis. Afterwards, when Fries, Koch and Reichenbach fil. call *O. majalis* Rchb. p. *O. latifolia*, they undoubtedly think of Haller's plant, the plant meant in Linnaeus's 1771 diagnosis. Consequently their *O. latifolia* L. should not bear 1753 but 1771 as its date! In that case that name is quite justified. Let us, however, avoid the name "*latifolia*" as *nomen confusum*, for now that Mr Pugsley has several followers already, not only in England, but also on the continent (Nevski in *Flora URSS*, iv (1935), p. 717, & Hellmayr in *Boissiera*, vii (1943), p. 387), the reintroduction of that name would merely add to the confusion and that should be prevented at all costs. In my opinion, however, there is no objection whatever to the maintenance of the name *O. incarnata* L. (excl. syn.); on the contrary, the continuity of the nomenclature should be preserved wherever and as much as possible, and certainly in those cases where we cannot be absolutely sure that the suggested change is a right one. We as specialists should bring about as few changes of names as possible, lest systematic botany should be discredited.

Here is the survey of the used names:

Before 1935.		After 1935.	
	By Pugsley.	By Mansfield.	By Vermeulen.
ORCHIS.	1935.	1938.	1944.*
latifolia L. =	*majalis* Rchb. =	*impudica* Crantz =	*majalis* Rchb.
incarnata L. =	*latifolia* L. =	*strictifolia* Opiz =	*incarnata* L.

*Cf. Vermeulen in *Ned. Kruidk. Arch.*, 53 (1943), p. 116.

Amsterdam, Jan. 1946.

II. H. W. Pugsley.

My paper criticised by Dr Vermeulen (*Journ. Linn. Soc. Bot.*, *49*, pp. 553-592 (1935)) was written chiefly to publish my discoveries of *Orchis cruenta* Müll. in the Alps and a new form (*O. occidentalis*) in Ireland, as well as to discuss the affinities of the British *O. latifolia* of Godfery, Stephenson and others (*O. pardalina*) and the high Alpine plant included by Ascherson and Graebner under the same name as a race *impudicus* (*O. alpestris*).

Before treating of these plants it was found essential to fix the interpretation of *O. latifolia* L., the earliest binominal name in the group, for in England there were three existing claimants to this name, and not one only as Vermeulen suggests.

My paper was reviewed by Dr Stephenson in the *B.E.C. Report for 1935*.

The paper first shows that the early herbalists from Dodoens onwards to Linnaeus assumed the existence of two greater Palmate Orchids, a male with unspotted leaves and a female with spotted leaves, and that these two plants with variants were repeatedly described. It is next demonstrated (1) that Linnaeus's specific diagnosis and description of *O. latifolia* in *Sp. Plant.* (1753) refers to the male plant and his type to the form recently regarded as *O. incarnata* L.; (2) that his synonyms relate to a similar plant; (3) that his note in *Hort. Cliff.* respecting spotted and unspotted leaves is due to the fact that in 1737 he did not recognise *O. maculata* as a separate species; and (4) that the existing specimens in his own and in Clifford's herbarium (excluding one example of *O. maculata* in the latter) are likewise " *O. incarnata*." It thus follows that the later name *O. incarnata* L., if adopted for this plant, is invalid, being applied to a species already validly published by Linnaeus as *O. latifolia*.

Vermeulen's objections to the maintenance of the Linnaean name *O. latifolia* are not very clearly stated, but they seem to be mainly based on his conception of the difference between the palmate and subpalmate tubers mentioned by Linnaeus in his descriptions; and he assumes that subpalmate tubers are those characterised by short segments or fingers as seen in *O. sambucina* L. The term " subpalmate " was first used by Linnaeus in the " Species Orchidum " in *Act. Soc. Upsaliensis* (1740). On page 14, in the account of the female plant (afterwards *O. maculata*), where Linnaeus uses the term palmate to describe the tubers, he explains it thus (translated): " Roots spreading and fingers bent outwards." On page 15, in the account of the male plant (afterwards *O. latifolia*), he defines subpalmate thus (translated): " Root divided into FEW fingers, and so scarcely palmate, straight, scarcely spreading." This effectually disposes of Vermeulen's theory of long and short fingers, for few straight fingers characterise *O. latifolia* L. (*O. incarnata* auct.) just as more numerous spreading ones do *O. maculata*, and the contention that the *Orchis bulbis subpalmatis rectis*, etc., of *Act. Soc. Upsal.* and subsequent works is primarily *O. sambucina* L. is completely stultified. It is to be regretted that Dr Vermeulen should thus cite and draw conclusions from works that he cannot have read.

Like other early herbalists, Linnaeus was interested in the roots of Orchids and was aware of the short " fingers " of *O. sambucina*.

An important fact that Vermeulen leaves unmentioned is that from 1753 to 1832, when Elias Fries wrote his *Novit. Fl. Suec., Mantissa I*, there was no confusion over the identity of *O. latifolia* L. either in Continental or British literature. It is excellently figured in *Flora Danica*, Smith's *English Botany*, and Curtis's *Flora Londinensis*. During this period *O. incarnata* L. was consistently regarded as a variety of *O. sambucina* L. It was only after the elder Reichenbach in 1828 had separated the widely spread plant with spotted foliage as *O. majalis* that Fries, who seems to have been actuated by a desire to suppress Reichenbach's name, proposed the changes that have led to the subsequent confusion. In 1832 he first suggested that *O. incarnata* was not a form of *O. sambucina*; in 1839 that it was identical with *O. Traunsteineri* Sauter; and in 1842 that Reichenbach's *O. latifolia* and *O. majalis* were *O. incarnata* and *O. latifolia* respectively. The confusion over these plants is connected with *O. incarnata* rather than *O. latifolia*; and there seems no good reason for treating *O. latifolia* L., *Sp. Plant.*, ed. 1, as a *nomen confusum* or a composite species. It is clearly described and typified, although shown with varieties, some of which have been transferred from it, as in the case of many other Linnaean species.

Vermeulen's remarks on the accounts of these plants subsequent to 1753 are of secondary importance seeing that the main point in question is the validity and correct application of the binary name *O. latifolia* published by Linnaeus in *Species Plantarum* in that year. I think they are all anticipated in chronological order in my original paper. I do not consider that Fries or Koch were influenced by Linnaeus's last *Mantissa* of 1771, for here *O. latifolia* is still described with unspotted leaves and *O. incarnata* is but briefly noticed and said to be " perhaps a variety of *O. sambucina*."

III. A. J. WILMOTT.

In 1922 Mr W. N. Edwards, now Keeper of Geology in the British Museum (Nat. Hist.) informed me that he was visiting Oeland, and he undertook to try to obtain specimens of the Marsh Orchis referred to by Linnaeus (1753: *Sp. Pl.*, 941) as " *Orchis bulbis subpalmatis rectis, nectarii cornu conico: labio trilobo lateribus reflexo, bracteis flore longioribus.* Act. Ups., 1740, 15. It. Oel., 48." We obtained all possible information from Linnaeus's MS. of his " *Öländska och Gothlandska Resa*, and although Mr Edwards found that the locality indicated by Linnaeus near "Rella" [Rälla] no longer bore any Marsh Orchids he brought back a good series from a small marsh just round the corner (on the Högsrum road) less than half a mile away. These were exhibited to the Linnean Society of London (see *Proc. Linn. Soc. Sess., 138*, p. 3). At the time I was misled by Dr Druce, who identified the specimens as *O. praetermissa*, and the remarks there published must be set aside, for the specimens are all *O. incarnata* auct., a species I then knew mainly in the small forms occuring in Wicken Fen, and the Rälla plants were tall plants with purple flowers. I had written up a long account of the history of the names *O. latifolia* and *O. incarnata* when I received a request from Col. Godfery, who had seen the notice in the Linnean Society's Proceedings, asking me to let him have my views on the matter. Unaware that Col. Godfery was intending to publish a paper on *Orchis latifolia* (see

Journ. Bot., *62*, 35: 1924). I replied that it would take too long to write them out again, but that I had them set out in a paper I was preparing which I would lend him if he wished. He borrowed the paper, extracted the results of my successful efforts to obtain the Rälla plant, and other details, and published them without asking my permission or making any acknowledgment to me. My own paper containing a full exposition of *O. latifolia* L. was never published. Once the Rälla plants had been identified by Dr Stephenson as *O. incarnata*, I had, however, come to very much the same conclusion as Mr Pugsley did years later, and, as a result of my own investigations, was aware of many of the various discoveries which he made concerning the history of Linnaeus's *Orchis latifolia*. I therefore wish to make some rejoinder to Dr Vermeulen's views, as I consider that there are " weak points " in his arguments also.

My first objection is that *Orchis latifolia* L. cannot be regarded as a *nomen confusum* because it included more than one species. If this were the case we should have to reject hundreds of Linnean names. It is certainly a *nomen ambiguum* in the sense in which I defined and gave this term (also "*nomen confusum*" and "*nomen dubium*") to Dr Sprague for inclusion in the *Proposals of British Botanists* made to the International Botanical Congress, 1930, i.e., as a name which is used currently in more than one sense. But I proposed that for purposes of nomenclature, *nomina ambigua* should be given precision by the citation of a second author after "*sec.*" = *secundum*, i.e., " according to." When a *nomen ambiguum* is found by further study to be capable of being given precision, by proper typification or otherwise, there is no reason for its rejection, as the wrong use disappears and the name ceases to be a *nomen ambiguum*. The citation of a second author is only necessary during the period of transition from the wrong use to the right one, and Dr Sprague's alteration of my proposal to the Congress (unknown to me) was unjustifiable. If all names which have at one time or another been *nomina ambigua* are rejected, and mere misinterpretation is to be allowed as a reason for rejection of names, how many more names we shall have to change! *Orchis latifolia* is *not* a *nomen confusum*, and must be used if it can be satisfactorily typified.

The specimen representing *Orchis latifolia* in the Linnean Herbarium is an exact match of the crassest of the specimens brought back by Mr Edwards from near Rälla. There is no doubt that it is *O. incarnata* auct. of the form met with when a cow-pat has been dropped upon the plant. The two specimens even match to the fungus spots to be found on the leaves of both, which fungus spots were in my opinion responsible for the mention of spots on the leaves of *Orchis latifolia*, printed by Linnaeus for the first time when he described *Orchis incarnata* (1755: *Fl. Suec.*, ed. 2, 312). For the descriptions of *O. latifolia* and *O. incarnata* were taken from his MS. notes in his own interleaved copy of the first edition of *Flora Suecica*, where on the same page he notes to no. 726, " Descriptio . . . it. oel. 45 " and to no. 727,

" Descriptio . . . it. oel. 46." As examination of the " Iter Oelandica " shows, Linnaeus paid considerable attention to Orchids on 2nd June 1741, and the annotations to *Flora Suecica* under *Orchis latifolia* and *O. incarnata* were made when the results of his travels in Oeland and Gothland, etc., were entered up into his Flora in preparation for a second edition. This annotation in *Flora Suecica* is the first mention made by Linnaeus of the occurrence of spots on the leaves of *O. latifolia*, and I had no doubt in 1922, and have none now, that the spots mentioned were the fungus-spots on the leaves of his herbarium specimen, which I believe he first noticed when comparing with it the weak specimen, also in his herbarium, that he was describing as *O. incarnata*. For *O. latifolia* had previously been primarily (Linnaeus's var. α both in his " 1740 " monograph and in the *Species Plantarum*) a plant with unspotted leaves, as Mr Pugsley independently discovered. Linnaeus's interest in these orchids started in Holland, and the plants in the Clifford Herbarium show that the reference to " *Hort. Cliff.*" belongs to *O. incarnata* auct. which is common in Holland. The development of his views in *Flora Suecica* and *Species Plantarum* were largely a consequence of his journey in Oeland, to which I will return later in this article.

In the monograph published by Linnaeus in " *Act. Ups.*, 1740 " [1744] all these orchids were included under the general definition " *Orchis bulbis subpalmatis rectis*," etc., the definition repeated in 1753. But this was a composite definition including all the varieties (α→) distinguished by Linnaeus. The stress laid by Vermeulen on the word " sub-palmatis " was in my opinion quite without justification, as I considered the " sub- " to signify merely " more or less." That this was so seemed to be shown by the fact that although in the " *Iter Oelandica* " in this definition Linnaeus says " *subpalmata*," in the *description* of *O. sambucina* he says " Radix palmata " and *not* subpalmata.[*] Further, Vermeulen appears to consider that the definition given by Linnaeus including the whole of the varieties refers only to the references preceding his var. α, whereas it is evident that these references are only general references which he regarded either as inclusive or not referable by him to the various varieties. This is clearly seen by reference to pp. 11 and 12 of his monograph, where, after a similar composite definition followed by several references preceding a large number of varieties (α→), he concludes by adding: " α—ε, Labium aequale . . . ζ—λ, Labium . . . μ—ο, Labium . . . " After reading the remarkable (for him) description given in 1755 by Linnaeus of *Orchis sambucina* (separated from *O. latifolia*), I suggest that Dr Vermeulen has not mastered Linnaeus's monograph, etc., rather than that Linnaeus had not mastered the group, so far as his limited information permitted.

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[*] See, however, Mr Pugsley's paper where Linnaeus's meaning of "sub-" is satisfactorily explained.

Where Linnaeus did go wrong was in citing " it. oel." under *O. latifolia* in 1755 instead of removing the reference to where it belonged, under *O. sambucina.* There was some justification for this citation, perhaps, because in the " It. Oel.", p. 48, Linnaeus deals with three orchids which he found near Rälla. First he describes " *Orchis bulbis subpalmatis rectis, nectarii cornu conico: labio trilobo integerrimo, bracteis flore longioribus* som allmänt kallas *Orchis palmata Sambuci odore*," which is *O. sambucina* L. (1755), the var. γ (and δ) of the "1740" monograph and only the var. *β* of the *Flora Suecica*, 1745, no. 728. Then he describes " *Orchis bulbis palmatis, patentibus, nectarii cornu geminibus breviore: labio crenato, dorsalibus patulis,* kallas allmänt *Orchis palmata maculata*," which the specimens brought back by Mr Edwards indicate to be *O. Fuchsii.* But he describes also a third plant, a marsh orchis, " *Orchis palmata palustris non maculata* " which is the Rälla *O. incarnata*, as shown by Mr Edwards's specimens and Linnaeus's remarks that the outer corolla leaves are bent back against each other. It is clear that the reference to " it. oel. 48 " could refer to both the first and third of these, for the name used for the third is not mentioned anywhere in either edition of the *Flora Suecica* and yet, being a Swedish orchis which *should* have been mentioned in that Flora—especially as Linnaeus clearly entered up the plants of the "*it. oel.*" into his *Flora Suecica*—the only place where it could be considered to be mentioned is in the reference to " it. oel. 48." It will be noted that although Linnaeus adds this reference after the *Act. Ups.* definition, the definition given in " it. oel." for neither plant is the same as that in the *Act. Ups.* It may therefore be that Linnaeus left the reference where he did because it covered both the first and third plants described on p. 48. But to me it seems more likely that Linnaeus produced so much work that he was rather careless (as so many of his slips indicate). Certainly if the reference to " it. oel. 48 " referred only to the first plant, it should have been transferred in 1755 to no. 803, *Orchis sambucina*," and not left under no. 801, *O. latifolia.* And this, I think, disposes of another of Vermeulen's arguments. It should also be added that *Orchis sambucina* is not a Marsh Orchis: it is a plant of *dry* meadows, bushy places, and light woodland (cf. Ascherson & Graebn. 1907: *Syn. Mitteleur. Fl.*, iii, 752). And if we read what Linnaeus says on p. 47 of the " it. oel." we find (B. Daydon Jackson's translation for me): " After 1¼ miles [nearly 8½ English miles] horses were changed at Isgiärde inn, whereupon we came into a large area of pine and oak, the pinewood was very serviceable for timber. At Rella estate [or farm] grew . . . " [the three orchids mentioned, and other plants named]. Presumably the *Orchis sambucina* grew in the woods and the *O. latifolia* (*incarnata*) in the marsh.

[My recollection is that the MS. said that this was so, but the MS. is at the moment not available for re-examination: I think Mr Edwards and I found that the marsh was just before the turning to

Högsrum.] But that Linnaeus confused *Orchis latifolia* (*incarnata*) with *O. sambucina* is not in the least borne out by all this detailed evidence given.

Another point that should be made is that the lip of *O. sambucina* is described as " trilobo," whereas in 1755 Linnaeus says that the lip of his *O. incarnata* is " structura simile " to that of *O. latifolia*, and the " 3lo " [=3 lobo] which he wrote was crossed out. This is from the MS. on the interleaf of *Flora Suecica*, ed. 1. The lip of 728 (which became *O. latifolia* in ed. 2) was there described as " vix trilobum," which is stronger than what he actually printed in 1755 (" obscure trilobum "), and fits *O. incarnata* better than it does *O. majalis*. Whatever may be responsible for the (mis-) interpretation of *O. latifolia* by Fries, this does not affect in any way all the evidence brought forward to show that, as Pugsley said, *O. latifolia* L. was *O. incarnata* auct. And unless the Vaillant figure is referable to *O. praetermissa*, there is nothing to show that that species enters into the matter, although it is probable that, had he known it, Linnaeus would have included it in his *O. latifolia*. Everything points to the view that the Linnaean name should be retained (for the time being as " sec. Pugsley ") for the plant so long known as *O. incarnata* L., and that the specimen in Herb. Linn. was used by Linnaeus as his type and should be regarded as such.

A HYBRID SEDGE NEW TO THE BRITISH ISLES

E. Nelmes.

As announced in the *Irish Naturalist* (*8*, p. 339: 1946), what appears to be a hybrid between *Carex hirta* L. and *C. vesicaria* L. was discovered in County Wicklow, Eire, by Mr J. P. Brunker, of Dublin, in July 1944. No hybrid between these species seems to have been recorded hitherto from the British Isles, and at the time of Kükenthal's monograph of the *Caricoideae* such a hybrid was known only from West Prussia. Descriptions show this to be very similar to the Irish plant, which does not appear to lean more to one parent than to the other, unless its shortly and subdensely hairy utricles are considered to be nearer to the longly and densely hairy ones of *C. hirta* than to the glabrous ones of *C. vesicaria*!

Kükenthal's Latin description of the hybrid found in Germany is rather short, and Fiek's two accounts are in German. Below is a full description of the Irish plants.

Carex hirta × *vesicaria* Fiek in *Allg. bot. Zeitschr.*, *2*, 182 (excl. syn.) (1896).—×*C. Grossii* Fiek in Aschers. et Graebn. *Syn.*, *2*(*2*). 228 (1903).—Kükenthal in Engl. *Pflanzenreich*, *4*(*20*), 760 (1909).

Rootstock absent. *Stems* about 60 cm. tall, erect, triquetrous, glabrous and smooth except for the scabrid angles near the apex, rather slender, ribbed. *Leaves* absent from the base of the stem, but 4-5 present on the lower half, the lower of which are short bladed, the upper longer but falling short of the apex of the stem, about 3-3.5 mm. wide, flat or flattish, closely and rather strongly nerved, with the midrib keeled on the under-surface and canaliculate-impressed on the upper surface, glabrous except towards the base, where they are sparsely hairy, smooth below but scaberulous on the margins and midrib towards the long attenuated apices; sheaths of the lower leaves glabrous or glabrescent, stramineous to reddish, membranaceous and often splitting into herring-bone shaped fibres in front, sheaths of the upper leaves glabrous below, sparsely to densely hairy above, pale and membranaceous in front. *Spikes* 4, erect to suberect, upper 2-3 staminate, dense-flowered, slenderly cylindrical, 2.75-4 cm. long, about 1.5-3 mm. thick (when the pistillate spikes are fruiting), subapproximate, lateral ones sessile, remaining 1-2 pistillate, subdense-flowered but sometimes lax-flowered at the base, cylindrical, 3.5-5 cm. long, about 7-8 mm. thick when the utricles are fully developed, at nodes 6-8 cm. apart, sessile to very shortly peduncled. *Bracts* of the staminate spikes from subfoliaceous and about as long as the spike to reduced to large scales, not sheathing the stem, bracts of the pistillate spikes foliaceous to subfoliaceous, from about reaching to falling short of the apex of the terminal staminate spike, glabrous, not or scarcely sheathing. *Pistillate scales* 3.5-5.75 mm. long, or about 2.75-4.75 mm. long if the rather ill-defined awn be excluded, 1.5-1.75 mm. wide, lanceolate to oblong-ovate-lanceolate or ovate-lanceolate, flattish to cymbiform, margins often involute, especially towards the apex, gradually to suddenly and obtusely narrowed above into the awn, rather thin and translucent, whitish to reddish with a broad, pale, central stripe and broadish whitish-hyaline margins, at least above, nerveless or nearly so, except for the midrib and 2 closely parallel nerves which converge upwards and coalesce to form a stouter midrib, which is excurrent in an ill-defined, minutely hispidulous-margined awn about .75-1 mm. long. *Utricles* 5-6 mm. long, 1.8-2 (2.25) mm. broad, ovoid-conical but subinflated-trigonous and somewhat shrunken, strongly pluri-nerved, evenly and subdensely covered with shortish hairs (much shorter and less dense than those of *C. hirta*), subcoriaceous, straight, obliquely spreading, shortly but stoutly stipitate at the rounded base, gradually tapering upwards and subgradually narrowing above into a compressed-cylindrical, narrowly marginate, glabrescent to sparsely hairy, sparsely hispidulous-margined, bidentate beak about 1.5 mm. long; mouth straight; teeth somewhat diverging, about .5 mm. long. *Nut* undeveloped.

West Prussia. On the side of a ditch between Tiegenhof and Reinland with the parents, *R. Gross.*

Ireland. H.20, Wicklow; coastal marsh, Magherabeg, 2nd July 1944, *J. P. Brunker.*

TWO CRITICAL GROUPS OF BRITISH SEDGES

E. NELMES.

As these are mainly attempts to help those interested in British sedges to identify the members of the two most difficult groups, questions of nomenclature will not be discussed in detail here. The specimens cited are all in *Herb. Kew.*, except the one mentioned as in *Herb. Druce*.

I. CAREX FLAVA L. (agg.).

There seems no doubt as to the identity of *Carex flava* L. itself, which was well explained by Mr N. Y. Sandwith in the *B.E.C. 1934 Report*, p. 992, and *C. lepidocarpa* Tausch is widely accepted as the correct name for another of the four species forming the group in Britain. The third species in descending order in the classification below has not hitherto been treated as a species since the time of the Swedish botanist, N. J. Andersson, and even he, in 1849, reduced to a subspecies of *C. Oederi* [auctt., non Retz.] his *C. tumidicarpa*, which he had established earlier in that year. British and European botanists have placed this plant either as a form or subspecies under *C. Oederi* or as a variety of *C. flava* L. There seems little doubt about the plant's specific status and *C. tumidicarpa* appears to be its name. There has been no disagreement, at least in recent years, about the status of the fourth and last British " *flava*," but its correct name has been and still is in some doubt. Recently (see *Journ. Bot.*, 77, 301-4: 1939). I suggested that it might be *C. serotina* Mérat, and this name has been accepted both in Europe and America. *C. demissa* Hornem. (1806) may be the correct name for one of the above-mentioned species, but the identification of Hornemann's plant has yet to be established.

KEY TO THE SPECIES

Utricles 4-7 mm. long, becoming strongly bent or curved at the apex (base of the beak); stems about 10-70 cm. tall, erect; occurring only on or under the influence of basic or calcareous soils :

Female spikes 2 or 3, not reduced to 1, rarely increased to 4, crowded with the terminal (male) spike, or lowest approximate or, less commonly, more distant, 10-15 mm. long, 10-12 mm. thick when the utricles mature; utricles 5-7 mm. long when curved or bent, longer if straightened out ...... 1. *flava*.

Female spikes 1, 2, or 3, rarely 4, usually all separated from one another and from the terminal spike by varying lengths up to 1.5 or 2 cm., less commonly more distantly spaced, 7-15 mm. long, 7-9 mm. thick when the utricles mature: utricles 4-5 mm. long when curved or bent, a little longer if straightened out .... 2. *lepidocarpa*.

Utricles 2-4.5 mm. long, straight or straightish, or some sometimes becoming slightly curved; stems about 2.5-35 cm. tall, erect, curved, or semi-decumbent, apparently not occurring on calcareous soils (female spikes 2-5 in each species) :

Stems often curved or semi-decumbent but sometimes more or less erect, 5-35 cm. tall; leaves about 2-4.5 mm. broad, flat or flattish; female spikes 5-13 mm. long, 5-8 mm. thick when the utricles mature, uppermost usually situated well below the base of the terminal spike, upper from crowded to approximate, lower separated by varying distances up to 1 cm. from one another, lowest usually distant or very distant from the one next above, not infrequently arising from the axil of a leaf (bract) at the base of the stem; whole inflorescence about 2-20 cm. long; utricles 3-4.5 mm. long, beak about as long as the rest of the utricle .... 3. *tumidicarpa*.

Stems erect, 2.5-20 cm. tall; leaves about 1-3 mm. broad, more or less canaliculate, female spikes 4-9 mm. long, 4-6 mm. thick when the utricles mature, crowded with the terminal (usually male) spike, or sometimes the lowest 1-2 approximate, less commonly the lowest up to 1-2 cm. from the next above: whole inflorescence about 1-4 cm. long, rarely longer; utricles 2-3 mm. long, beak about ½ as long as the rest of the utricle .... 4. *serotina*.

1. CAREX FLAVA L., *Sp. Pl.*, ed. 1, 975 (1753).

So far as is known this species is very rare in Britain, its only certainly known locality up to the 1946 season being a wood near Haverthwaite, v.-c. 69, N. Lancs., from where it was distributed through the Club by W. H. Pearsall in 1913, though a plant recorded by J. Fraser from Seckley Wood, Arley, Worcs. (formerly Staffs.) may belong to this species (see *B.E.C. 1884 Rep.*, 118). During the summer of 1946 it was found in v.-c. 64, M.W. Yorks., by Mr G. A. Shaw. In Lancs. and Yorks. the habitat is damp peat overlying carboniferous limestone. It is a widely spread species in Europe.

This, the largest member of the group, has at least one character in common with *C. serotina*, the smallest, which is the crowded nature of its spikes, but it is not likely to be confused with any species except *C. lepidocarpa*. From this it is distinguished by its spikes crowded at the apex and its longer utricles.

2. C. LEPIDOCARPA Tausch in *Flora*, *17*, 179 (1834).

This, like *C. flava*, appears to be a calcicole. In Gloucestershire, for example, where I know it best, it is the only " flava " on the limestone Cotswolds, where it occurs in runnels and wet places originating from springs on the hillsides. In the alluvial Severn Vale and on the Old Red Sandstone west of the Severn it is replaced by *C. tumidicarpa*. It is widely spread on the Continent and in Britain.

This species somewhat resembles *C. tumidicarpa*, especially before its utricles develop and become strongly bent at the apex. Its straight stems distinguish it from curved or semi-decumbent specimens of *C. tumidicarpa*, and from these and straight-stemmed forms it differs in being without a subradical spike, having strongly bent utricles, and in eschewing acid soils.

Specimens.—11, S. Hants; St Clair's Farm, Droxford parish, *E. Milne-Redhead* 2473. 12, N. Hants.; Greywell, *E. C. Wallace*: *ibid.*, *E. Milne-Redhead* 2211: *ibid.*, *E. Nelmes* 378, 379. 22, Berks.; Cothill, *J. E. Lousley*: *ibid.*, *C. E. Hubbard* 11122: *ibid.*, *J. P. M. Brenan* CA.50, CA.54. 23, Oxon.; Headington Wick

Copse, *W. B. Turrill*: Weston on the Green, *J. P. M. Brenan* CA.56, CA.57. 26, W. Suff.; Thelnetham Fen, *E. Milne-Redhead* and *H. K. Airy Shaw* 2073. 27, E. Norf.; Thurne, *C. E. Salmon.* 28, W. Norf.; Caldecote Fen, *J. E. Little*, 1919 (*B.E.C.* and *Wats. B.E.C.*); Derby Fen, near Roydon Common, and E. Walton Common (2 localities), *E. L. Swann.* 29, Cambs.; Wicken Fen, *E. Nelmes* 203. 30, Beds.; The Litany, Totternhoe, *E. Milne-Redhead* and *J. G. Dony.* 33, E. Glos.; Seven Springs, Bourton on the Water, *E. Milne-Redhead* 1275: near Brimpsfield, *E. Milne-Redhead* 2405: *ibid.*, *E. Nelmes* 703, 733: near Duntisbourne Abbots, *H. K. Airy Shaw*; Puckham Bog, *E. Nelmes* 705, 748. 36, Heref.; Gt. Doward, 1889, *A. Ley* (*B.E.C.*). 42, Brecon, Penderyn, *E. Milne-Redhead* and *H. K. Airy Shaw* 5479. 52, Anglesey; Cors Bodeilio, *E. Milne-Redhead* 2418. 56, Notts.; near Shireoaks, *J. Brown.* 63, S.W.Yorks.; Bolton Abbey, *J. B. Wood.* 64, M.W.Yorks.; Ribblehead, 1934, *W. A. Sledge* (*B.E.C.*): Ripon Parks, 1938, *C. M. Rob* (*B.E.C.*). 65, N.W.Yorks.; Sleddale, *E. Milne-Redhead* and *H. K. Airy Shaw* 1535. 66, Durham; Newbiggin, *J. E. Lousley.* 69, Westm.; near Whelprigg, *E. Milne-Redhead* and *H. K. Airy Shaw* 1480. 88, M. Perth; Ben More, *E. Nelmes* 415: Ben Lawers, *E. S. Edees* 4702 (part). 89, E. Perth; Spittal of Glenshee, *J. Raver.* 90, Forfar; Clova, *J. E. Lousley.* 92, S. Aberd.; Loch Ceander, *G. C. Druce.* 96, Easterness; near Nairn, *W. A. Shoolbred* 568. 98, Main Argyll; Ben Douran, 1933, *E. C. Wallace* and *R. Mackechnie* (*Wats. B.E.C.*): Ben Lui, *J. E. Lousley.* 105, W. Ross; Cnochan Rocks, *J. E. Lousley.* 108, W. Suth.; Inchnadamph, *E. S. Marshall.* 109, Caithn.; Wick River, *J. Grant*; Loch Winless, *P. M. Hall* and *E. C. Wallace* 3427. 111, Orkney; Hoy, *H. H. Johnston*: Isle of S. Ronaldshay, *J. W. Heslop Harrison.*

H.9, Clare; Cahir River, *J. E. Lousley.* 15, S.E. Galway; Gort, *J. E. Lousley.* 19, Kildare; Leixlip, *A. W. Stelfox.* 27, W. Mayo; Mweelrea, *J. P. Brunker.* 33, Ferm.; near Derrygonnelly, *D. Meikle.*

Most of the Scottish specimens cited above belong to what has been called the " mountain form " of the species. This plant has larger fruits and darker glumes.

3. C. TUMIDICARPA Anderss. in *Bot. Notiser*, 1849, 6.—*C. Oederi* subsp. *oedocarpa* Anderss., *Cyper. Scand.*, 25 (1849).—*C. flava* var. *minor* Towns. in *Journ. Bot.*, *19*, 263 (1881).

As mentioned above, this species appears to be a calcifuge, and is found on a variety of non-calcareous soils, in rather damp rides in woods, furrows in meadows, and in rather damp spots on heaths. It is the commonest " *flava* " in Britain, being widely spread throughout the British Isles, and also on the Continent.

Small specimens are sometimes misidentified as *C. serotina*, but the arrangement of the spikes, broader and flattish leaves, actually and relatively longer beak, and semi-decumbent habit, singly or in combination, of *C. tumidicarpa*, should enable one to recognise this species.

It appears to be divisible into several forms as is suggested by its erect or semi-decumbent stems, and its spaced or more crowded spikes, with or without a distant or basal one, but such forms have not been clearly recognised.

Specimens.—1, W. Cornw.; Mullion, 1929, *J. E. Lousley* (*B.E.C.*). 2, E. Cornw.; near Launceston, *E. Thurston.* 3, S. Devon; Postbridge, *W. T. Stearn.* 6, N. Som.; Ashcott Peat Moor, 1929, *H. S. Thompson* (*Wats. B.E.C.*). 7, N. Wilts.; Braydon, *J. D. Grose.* 9, Dorset; Corfe, *N. D. Simpson.* 11, S. Hants.; Holmsley, *E. Nelmes* 387. 12, N. Hants.; Fleet Pond, *E. Nelmes* 361. 13, W. Suss.; Iping Marsh, *E. Milne-Redhead* and *V. S. Summerhayes* 5397. 17, Surrey; Epsom Common, 1933, *E. C. Wallace* 1876 (*B.E.C.*): near Brook, 1933, *E. C. Wallace* 1878 (*Wats. B.E.C.*). 20, Herts.; Northaw, 1912, *J. E. Little* (*Wats. B.E.C.*). 28, W. Norf.; Wretton Fen, 1925, *J. E. Little* (*B.E.C.*). 33, E. Glos.; Brockeridge Common, *E. Nelmes* 741. 34, W. Glos.; Hill, *E. Nelmes* 158: between Drybrook and Mitcheldean, *E. Nelmes* 697, 880. 35, Monm.; near Pontrewydd, *A. E. Wade.* 37, Worcs.; Castlemorton Common, *F. M. Day.* 38, Warw.; Wolford Heath, *H. J. Riddelsdell.* 39, Staffs.; Stanton, *E. S. Edees* 2124. 42, Brecon; Llangattock, *E. Milne-Redhead* and *H. K. Airy* Shaw 5444, 5452. 45, Pemb.; Strumble Head, *J. S. L. Gilmour.* 46, Card.; Teifi Bog, Tregaron, *J. A. Whellan.* 48, Mer.; Corris, *V. S. Summerhayes.* 52, Anglesey; Cors Goch, *J. F. G. Chapple.* 56, Notts.; near Shireoaks, *J. Brown.* 57, Derby; near Cat and Fiddle Inn, *E. S. Edees* 1073. 58, Ches.; Seaman's Moss, *G. E. Hunt.* 59, S. Lancs.; St Helens, *A. B. Jackson.* 63, S.W.Yorks.; Kirkhouse Green, *J. M. Taylor.* 64, M.W.Yorks.; Spofforth, *E. C. Wallace* 5186, 5188, 5189, 5191. 65, N.W.Yorks.; near High Force, *E. C. Wallace* 5185. 69, Westm.; Barbon Dale, *E. Milne-Redhead* and *N. Y. Sandwith* 2022. 70, Cumb.; Wasdale Head, *H. K. Airy Shaw* 46/41. 74, Wigt.; Portencorkrie, *C. I. Dickinson.* 88, M. Perth; between Ben More and Crianlarich, *E. Nelmes* 403. 91, Kinc.; Glenbervie, *J. Fraser.* 97, Westerness; near Fort William, *W. T. Stearn.* 98, Main Argyll; Crarae, Loch Fyne, *A. K. Jackson.* 99, Dumb.; near Milngavie, *W. B. Turrill.* 101, Cantyre, W. Loch Tarbert, *J. S. L. Gilmour.* 102, S. Ebudes; Isle of Colonsay, *J. Heslop Harrison.* 104, N. Ebudes; Isle of Rhum, *J. W. Heslop Harrison.* 105, W. Ross; Gairloch to Port Henderson, *M. L.* and *T. A. Sprague.* 109, Caithn.; Scrabster, *R. W. Butcher.* 110, O. Hebr.; Pabbay, Harris, *W. A. Clark.* 111, Orkney; Hoy, *H. H. Johnston.*

H.1, S. Kerry; Gt. Blasket Island, *S. Ross-Craig*, *J. R. Sealy*, and *B. L. Burtt.* 7, S. Tipp.; Glen of Aherlow, *A. W. Stelfox.* 20, Wick.; Athdown, *A. W. Stelfox.* 21, Dublin; Glenasmole, *J. P. Brunker.* 27, W. Mayo; Louisburgh, *J. P. Brunker.* 33, Ferm.; near Derrygonnelly, *D. Meikle.* 36, Tyrone; Newmills, *D. Meikle.* 38, Down; Tollymore Park, *J. P. M. Brenan* 5007. 39, Antrim; shore of L. Neagh, near Toome, *D. Meikle.* 40, Derry; Carntogher, *M. M. Whiting.*

4. C. SEROTINA Mérat, *Fl. Paris*, ed. 2, *2*, 54 (1821).—*C. Oederi* auctt., non Retz.

This plant seems to be a calcifuge, and perhaps still more decidedly so than *C. tumidicarpa*, being especially partial to coastal sand slacks throughout the British Isles and Western Europe It is much less common inland, but when it does occur there it is often more robust in habit, such as the form found on the Shapwick peat moors in Somerset and that in disused gravel pits near Cirencester.

Specimens.—4, N. Devon; Braunton Burrows, *W. B. Turrill*. 6, N. Som.; Shapwick Peat Moor, 1930, 1933, *H. S. Thompson* (*Wats. B.E.C.*). 12, N. Hants.; shore of Fleet Pond, *N. Y. Sandwith*. 28, W. Norf.; Wretton Fen, *J. E. Little*: Leziate, *E. L. Swann*. 29, Cambs.; Chippenham, *F. J. A. Hort*. 33, E. Glos.; Siddington parish, near Cirencester, *E. Nelmes* 693b, 804b. 41, Glam.; Kenfig dunes, *J. S. L. Gilmour*: Mynydd-y-Glew, *C. I. Sandwith*. 48, Mer.; Barmouth Sands (*Hb. Shuttleworth*). 49, Caern.; near Criccieth, *J. A. Whellan*. 52, Anglesey; 1810, *Rev. Hugh Davies* (*Hb. Goodenough*). 59, S. Lancs.; Ainsdale, *G. E. Hunt*: near Southport, *E. Doraston*. 60, W. Lancs.; between Blackpool and St Anne's, *J. A. Whellan*. 70, Cumb.; Ravenglass, *H. K. Airy* Shaw 46/48. 95, Moray; Culbin Sands, *N. Y. Sandwith*. 107, E. Suth.; Cambusavie, Loch Fleet, *J. E. Lousley*. 110, O. Hebr.; Uig, Lewis, *W. A. Clark*. 111, Orkney; Hoy, *H. H. Johnston*.

H.1, S. Kerry; stony shore of Caragh Lake, *J. E. Lousley*. 2, N. Kerry; edge of Muckross Lake, Killarney, *S. Ross-Craig*, *B. L. Burtt*, and *J. R. Sealy*. 39, Antrim; shore of L. Beg, *D. Meikle*.

II. C. MURICATA L. (agg.).

What Linnaeus meant by his *Carex muricata* has been variously interpreted. Two of the greatest caricologists of recent years, Mackenzie (1923) and Krechetovich (1935: 152) identify it with the small stellately-spiked bog sedge usually known as *C. echinata* Murr. (*C. stellulata* Good.) as did Hudson in his *Fl. Angl.* of 1762. Most British botanists, up to recent times, have applied the Linnaean epithet to the species which many Continental botanists were at the same time calling *C. contigua* Hoppe, the correct name of which is probably *C. spicata* Huds. (see *Journ. Bot.*, *80*, 105: 1943). These Continental botanists, headed by Kükenthal, preferred not to adopt the epithet "*muricata*", because of doubt as to its application. Other Continental authors followed the British view and so recently as 1944 *C. spicata* Huds. was still being accepted as the plant of Linnaeus. Finally, as *C. Pairaei* F. Schultz came more and more to be recognised as specifically distinct from *C. spicata*, and especially when Linnaeus's " type specimen " was identified as *C. Pairaei* by authorities who examined it, this species was by some held to be true *C. muricata* L.

In the present paper this specimen of Linnaeus is taken to be his *C. muricata*, the evidence for this view being now in preparation. It is considered to be distinct, though possibly not specifically distinct, from *C. Pairaei*. It should, however, be noted that this splitting is in conflict with the views of caricologists monographing the European sedges, including Kükenthal (1909) and Krechetovich (1935: 155).

Besides *C. muricata* itself, the group is taken to comprise, in Britain, *C. polyphylla* Kar. et Kir. (*C. Leersii* F. Schultz, non Willd.), *C. divulsa* Stokes, *C. Pairaei* F. Schultz, and *C. spicata* Huds. (*C. contigua* Hoppe). There is also a plant with characters intermediate between those of *C. polyphylla* and *C. divulsa*, found on the Cotswolds and on similarly calcareous soils in Norfolk and other counties, which may have originated through hybridization, but its precise status and relationship are at present in doubt. It is possibly what Schultz intended by his *C. Chabertii*, but this remains to be investigated.

C. divulsa, *C. Pairaei*, and *C. spicata* are common in many parts of western Europe. *C. polyphylla*, on the contrary, seems to be most common and typical in eastern Europe, and the chief area of distribution of *C. muricata* appears to stretch from Sweden to the Balkans, their British representatives being rather less robust plants with narrower leaves, and therefore less readily distinguishable from *C. divulsa* and *C. Pairaei* respectively.

KEY TO THE SPECIES

1. Lower leaf-sheaths. throughout the plant's life, the scale-like base of the bracts, from and including the flowering stage onwards, and some of the female scales, from an early fruiting stage until the scales wither, stained and splashed vinaceous or reddish-vinaceous; ligule much longer than broad; female scales 3-5 mm. long; utricles 4-6 mm. long, spongy-thickened at the base, so that the nut is situated well above it:—(leaves 2-4 mm. wide; inflorescence 1.5-4(5.5) cm. long and 8-12 mm. thick when the fruits are mature; lower spikes contiguous or slightly separated—the 2 lowest infrequently by as much as 5-7 mm.—all simple or, rarely, lowest composed of several spikes crowded together; lowest bract from about as long as to twice or more as long as its spike; beak of the utricle—apex of nut to apex of teeth—about 2 mm. long) .... 5. *spicata*.

1. Lower leaf-sheaths, the scale-like base of the bracts, and the female scales, pale to brownish (the leaf-sheaths sometimes faintly pinkish) but never vinaceous or reddish-vinaceous; ligule from broader than long to slightly longer than broad; female scales 2.5-4 mm. long; utricles 3-5.5 mm. long, not or but little spongy-thickened at the base:

  2. Inflorescence 3-14(17) cm. long; lower "spikes" from slightly to distantly separated from one another, each often composed of 2-5 simple spikes and then 0.8-3(4) cm. long:

    3. Leaves 2.25-4 mm. wide; ligule usually broader than long; inflorescence 3-7 cm. long and 7-10 mm. thick when the fruits are mature; lower spikes contiguous to subapproximate, lowest 2 contiguous to 2 cm. apart (up to 2.5 cm. from node to node) when the fruits are mature, lowest 1-2(3) "spikes" sometimes composed of 2-5 spikes which are usually crowded or, less commonly, contiguous on an elongated axis, 0.8-1.5 cm. long; lowest bract sometimes shorter but at other times considerably longer than its spike; female scales 2.5-3.5 mm. long, light to dark brown; utricles 4.5-5.5 mm. long, 2-2.5 mm. broad, rather broadly marginate, beak about 2 mm. long; teeth straightish to diverging, sparsely scabrid on the outside, 0.5-1 mm. long .... 1. *polyphylla*.

3. Leaves 1.5-3 mm. wide; ligule from as broad as long to slightly longer than broad; inflorescence 4-14(17) cm. long and 5-7 mm. thick when the fruits are mature; lower spikes at increasing distances apart down the stem, so that the lower ones are separated from one another by 1-4 cm. (1.5-5 cm. from node to node) when the fruits are mature, lowest 1-2(3) "spikes" sometimes composed of 2-4 spikes on an elongated axis, 0.8-3(4) cm. long, 1 or all of these, except the terminal, represented by empty bracteoles; lowest bract longer, often very much longer, than its spike; female scales 3-4 mm. long, white, sometimes slightly tinged reddish-brown; utricles 3.25-5 mm. long, 1.5-2.25 mm. broad, narrowly marginate, beak 1-1.5 mm. long; teeth straight, smooth or nearly so, 0.25-0.4 mm. long .... 2. *divulsa*.

2. Inflorescence 1-3.5 cm. long; lower spikes contiguous to little separated from one another, all simple, about 4-7 mm. long (female scales 2.25-4 mm. long; utricles 3-4.75 mm. long) :

4. Leaves 2-4 mm. wide; 2 lowest spikes often separated from each other by 2-5 mm.; female scales usually dark brown; utricles 2-2.5 mm. broad, rather broadly marginate, becoming subpatent to patent at maturity, beak 1.5-2 mm. long .... 3. *muricata*.

4. Leaves 1.5-3 mm. wide; 2 lowest spikes rarely separated from each other by as much as 2-3 mm.; female scales usually light brown; utricles 1.5-2 mm. broad, narrowly marginate, becoming suberect to subpatent at maturity, beak 1-1.5 mm. long .... 4. *Pairaei*.

1. C. POLYPHYLLA Kar. et Kir. in *Bull. Soc. Nat. Mosc., 14*, 859 (1841).—*C. Leersii* F. Schultz in *Flora, 53*, 459 (1870) et *54*, 25, t. II (1871); non Willd. (1787).

C. polyphylla shows a distinct preference for calcareous soils, and its favourite habitats appear to be hedge-banks, roadsides, and wood-borders on chalk and limestone hills, where it forms large tufts, usually very few in any one spot. It is scattered thinly and unevenly over England, but is almost unknown, at least at present, from Wales, Scotland, and Ireland.

Many botanists have been reluctant to recognise this as a distinct species, most of them, like Kükenthal, treating it as a variety of *C. Pairaei*, though Samuelsson and others considered its chief affinity to be with *C. divulsa*. Kükenthal no doubt noted its resemblance to another eastern European sedge, *C. muricata*, which he included in *C. Pairaei* (called by him *C. echinata* Murr.). *C. polyphylla* is certainly, and perhaps more closely, related to *C. divulsa*. It may be supposed to represent most nearly the ancestor of the group, and to have forked into *C. divulsa* and *C. muricata*, the latter giving rise to *C. Pairaei*. *C. spicata* probably deviated earlier from the main stem.

It has utricles which are similar in size and shape to those of *C. spicata* but usually much less rounded and spongy-thickened at the base. The scales are shorter in comparison with the utricles than those of *C. spicata* and are brown in colour. In eastern Europe its leaves are usually grey-green and up to 5 mm. wide. Its lowest spikes are compound much oftener than those of *C. spicata*, and its inflorescence of considerably longer average length. Its ligule, too, is quite distinct from that of the other plant.

Specimens.—6, N. Som.; near Tickenham, *C. I.* and *N. Y. Sandwith*: near Cheddar, *E. Nelmes.* 7, N. Wilts.; Marlborough, *M. L. Wedgwood.* 11, S. Hants.; between Portchester and Fareham, 1929, *P. M. Hall* (*B.E.C.*). 12, N. Hants.; Coombe, *A. B. Jackson* and *J. Fraser.* 15, E. Kent; Holly Hill, N. Downs, *E. Milne-Redhead* and *N. Y. Sandwith* 33. 17, Surrey; near Godalming, *E. B. Bishop*: above Mickleham. *N. Y. Sandwith.* 34, W. Glos.; near Sea Mills, 1905, *J. W. White* (*Wats. B.E.C.*): between Tarlton and Coates, *H. K. Airy Shaw*: *ibid.*, *E. Nelmes* 829, 830. 38, Warw.; between Hampton and Clevedon, *A. R. Horwood.* 39, Staffs.; Madeley, *E. S. Edees.* 57, Derby; near Bakewell, *J. Brown.* 63, S.W.Yorks.; Fishlake, *S. P. Rowlands* and *J. M. Taylor.* 64, M.W.Yorks.; Copgrove, 1944, *E. C. Wallace* 5521 (*B.E.C.*). 65, N.W.Yorks.; Coverham, 1945, *C. M. Rob* (*B.E.C.*).

2. C. DIVULSA Stokes in With. *Bot. Arrang. Brit. Pl.*, ed. 2, 1035 (1787).

This species occurs on roadsides and hedgebanks, and in or near woods, in dry to rather damp situations. It is a rather common plant in England but uncommon or rare in the remainder of Britain.

It was long ago recognised as distinct from its allies (excepting *C. polyphylla*, not then known here), probably owing to the fact that its lower spikes are so much separated from one another, forming a long, slender inflorescence. It seems to be most distinct from *C. polyphylla* when it occurs on light and non-calcareous soils, for which it shows a preference. Then it has white scales, except for the green midrib-stripe, and very short, slender, smooth teeth to the beak of the utricle. When the species occurs on calcareous soils, which appears to be less frequent, a brownish tinge is found on the scales, the utricles are slightly larger and the teeth a little less slender. Then it is sometimes confused with *C. polyphylla*, and, indeed, it is not easy to distinguish such specimens of *C. divulsa* from slender plants of *C. polyphylla.* It is hoped that the detailed descriptions in the key will enable complete specimens of these two species to be correctly identified. Its invasion of calcareous areas brings this species into contact with *C. polyphylla*, and it may be that the unidentified plant mentioned in the introduction has been a result of this association.

Specimens.—3, S. Devon; Kingswear, *J. D. Grose.* 11, S. Hants.; Titchfield, *E. Milne-Redhead* 2476. 13, W. Suss.; near Strood Green, 1934, *E. C. Wallace* (*B.E.C.*). 14, E. Suss.; Fairwarp, *N. Y. Sandwith.* 16, W. Kent; Goudhurst, *J. R. Wallis.* 17, Surrey; Newdigate, *J. E. Lousley.* 20, Herts.; Watford, *J. Fraser*: Langley, Hitchin, 1924, *J. E. Little* (*Wats. B.E.C.*). 21, Middx.; Stanwell, *B. Welch.* 27, E. Norf.; Haveringland, *E. L. Swann.* 30, Beds.; Stanbridge, *J. G. Dony.* 34, W. Glos.; near Thornbury, *E. Nelmes* 74: near Winterbourne, *C. I. Sandwith.* 35, Monm.; S. of Raglan, *N. Y. Sandwith* 3104. 64, M.W.Yorks.; E. Keswick, 1944, *E. C. Wallace* 5522 (*B.E.C.*).

H.21, Dublin; near Lucan, *J. P. Brunker.* 39, Co. Antrim; between Shore Road Greenisland and Troopers Lane Station, *D. Meikle.*

3. C. MURICATA L., *Sp. Pl.*, ed. 1, 974 (1753).—*C. loliacea* Schkuhr, *Riedgr.*, *1*, 22 (1801); non L.—*C. nemorosa* var. *cuprina* Sándor ex Heuffel in *Linnaea*, *31*, 662 (1862).—*C. cuprina* (Sándor) Nendtvich in *Verhandl. Zool.-Bot. Ges. Wien.*, *13*, 566 (1863).

Here, for the first time, a distinction is made between *C. muricata* L. and *C. Pairaei*, though whether they are specifically distinct, as is here tentatively suggested, is a matter for further study to decide. Specimens of *C. muricata* from northern and, especially, eastern Europe, with broader leaves, often rich dark brown scales, and strongly reflexed utricles, look strikingly different from authentic French and typical British *C. Pairaei*. (The latter species was described from French specimens.) British specimens of *C. muricata*, if those cited below really do belong to this species, have scarcely broader leaves than those of *C. Pairaei*, and the other distinguishing characters do not seem quite so distinct as in specimens from eastern Europe. Before the war I had come to regard the plant of the Linnaean herbarium as matching specimens of "*C. Pairaei*" from Scandinavia and eastern Europe and as representing a distinct species, but it was not until 1942 that I recognised it as a possible British plant. In that year I was examining *Carices* in Druce's herbarium, and a specimen there of supposed *C. Pairaei* from Woodchester, in the Cotswolds, seemed to me to be *C. muricata*. This opinion was later strengthened by the realization that Woodchester has a limestone soil, which is favoured by *C. muricata*, whereas *C. Pairaei* seems confined to soils of a sandy or gravelly nature. After the war similar plants were noted in the *C. Pairaei* covers at Kew from a limestone area in Yorkshire and from the other similar habitats mentioned below.

Specimens.—34, W. Glos.; Woodchester [oolitic limestone], 1900, *G. C. Druce.* 50, Denb.; in a dry, exposed situation among broken stones, on the top of a limestone hill, near Wrexham, 1840, *J. E. Bowman.* 64, M.W.Yorks.; limestone slopes near Gordale, 1934, *E. Milne-Redhead* and *N. Y. Sandwith* 2016: limestone scree, Gordale Scar, 1000 ft., 1937, *J. E. Lousley.* 81, Berwick; Lauder, 1878, *A. Brotherston.*

4. C. PAIRAEI F. Schultz in *Flora*, *51*, 302 (1868).—*C. muricata* auctt., non L.

This species is a decided calcifuge and is widely spread in Britain, occurring frequently in dry or dryish situations, on roadsides, heaths, commons, etc., on the older, acid soils of the west, and on sandy or gravelly soils over southern and eastern England.

The relationship of this species to *C. muricata* is discussed above. The only other species with which it is likely to be confused is *C. spicata*, because these two have similarly congested and contracted heads of spikes, and from this species it can easily be distinguished by the absence of vinaceous colouring, and also by its shorter ligules, scales, and utricles.

Specimens.—1, W. Cornwall, Mullion, 1917, *E. S. Marshall* 4397 (*B.E.C.*). 4, N. Devon; near Tiverton, *A. L. Still*. 6, N. Som.; Keynsham, *N. Y. Sandwith*. 13, W. Suss.; Midhurst, 1922, *J. E. Little* (*Wats. B.E.C.*). 16, W. Kent; Seal, *E. Nelmes* 347. 17, Surrey; Richmond Park, *E. Nelmes* 342, 444: Westcott, 1932, *E. C. Wallace* (*B.E.C.*). 20, Herts.; Codicote High Heath, 1924, *J. E. Little* (*Wats. B.E.C.*). 21, Middx.; Strand-on-the-Green, *B. Welch*. 22, Berks.; Frilford, *N. Y. Sandwith*. 23, Oxon.; Stow Wood, *C. E. Hubbard* 10750A. 28, W. Norf.; Cockley Cley, *C. E. Hubbard*. 30, Beds.; Rowney Warren, 1924, *J. E. Little* (*B.E.C.*): Heath and Reach, *E. Milne-Redhead* 5276. 34, W. Glos.; Bromsberrow, *E. Milne-Redhead* 2002, 2005: Chase End Hill, *E. Milne-Redhead* 2004: Michael Wood, near Stone, *E. Nelmes* 795, 795a, 839, 840, 859. 35, Monm.; Abergavenny, *N. Y. Sandwith* 3106. 37, Worcs.; Malvern Wells, 1914, *R. F. Towndrow* (*B.E.C.*). 39, Staffs.; Swynnerton, Colwich, Enson (3 localities), *E. S. Edees* 2613, 2977, 3253. 43, Radnor; Stanner Rocks, *J. E. Lousley*. 45, Pemb.; St David's, *C. I.* and *N. Y. Sandwith*. 46, Card.; Pentryn, *J. A. Whellan*. 47, Mont.; near Llanwyddn, *N. Y. Sandwith*. 49, Caern.; between Llanystumdwy and Criccieth, *J. A. Whellan*. 52, Anglesey; between Ty Croes and Llyn Maelog, *C. E. Salmon*. 62, N.E.Yorks.; Catton, *C. M. Rob*. 63, S.W.Yorks.; near Doncaster, *S. P. Rowlands*. 64, M.W.Yorks.; Spofforth, *E. C. Wallace* 5149, 5150. 70, Cumb.; Ullswater, *N. Y. Sandwith*.

H.7, S. Tipp.; Glen of Aberlow, *A. W. Stelfox*.

5. C. SPICATA Huds., *Fl. Angl.*, ed. 1, 405 (1762).—*C. contigua* Hoppe in Sturm, *Deutschl. Fl.*, xiv, lxi [t. 962] (1833).—*C. muricata* auctt., non L.

This is the commonest member of the group in England, occurring frequently in the south but thinning out northwards and becoming much less common in Scotland. It is also uncommon on the older rocks in the west. The plant is found on almost all soils, though it is more partial to the calcareous and basic ones, such as limestone, chalk, marl, and clay. Somewhat damp but not wet situations seem to suit it best, on roadsides and along the margins of streams and other water-courses, out of reach of the water, but it appears to be quite happy, though possibly less robust, in light soil on a dry hillside, bordering a hedge or wood.

This species is, in my opinion, more distinct from the other British members of the group than they are from one another. The vinaceous colouring on sheaths, bracts, and scales is a certain distinguishing character because it is never found in any of the allied species, though it has not been used in this way before. The length of female scale and ligule is also a useful aid in identification.

Kükenthal uses a distinguishing character for *C. spicata* which I do not find dependable. He speaks of an appendage, tongue, or convex apex to the mouth of the membranous front of the sheath, opposite the ligule. While this may sometimes occur in *C. spicata*, I have noticed it in this group only in *C. polyphylla* and then but rarely. What one does observe about the apex of the sheath in all these species is that it is usually more or less truncate in the lower sheaths and more or less concave in the upper ones.

It may be well to add a warning here against placing too much reliance on ligule characters in this group of sedges. The length of the ligule varies somewhat within each species, but the breadth varies more, as it seems to agree with the leaf-breadth. In spite of this the ligule character can be used to help distinguish *C. spicata* from its allies, because its ligule is so long that it remains longer than broad even in the broadest leaves. In the other species, however, although the ligule is usually broader than long in *C. polyphylla*, often broader than long in *C. muricata*, usually about as broad as long in *C. Pairaei*, and from as broad as long to slightly longer than broad in *C. divulsa*, the variation, especially in breadth, in the ligule in each species is such that clear-cut distinguishing differences are not to be found.

Specimens.—6, N. Som.; Bristol, Ashton Gate, site of White City, 1922, *H. S. Thompson* (*Wats. B.E.C.*). 7, N. Wilts.; Lottage, Aldbourne, *J. D. Grose*. 13, W. Suss.; near Hardham, 1933, *E. C. Wallace* (*Wats. B.E.C.*). 14, E. Suss.; Eastbourne Crumbles, *E. Milne-Redhead* and *N. Y. Sandwith* 1797, 1802. 17, Surrey; Thames-side, Putney, 1924, *D. G. Catcheside* (*Wats. B.E.C.*): Ham gravel pits, *E. Nelmes* 202. 21, Middx.; Ealing, meadow near R. Long (*Herb. Goodenough*): St Olave's Churchyard, City of London, *J. E. Lousley*. 22, Berks.; near Old Windsor, *W. B. Turrill*. 23, Oxon.; Beckley, 1932, *J. F. G. Chapple* (*B.E.C.*): between Yarnton and Wolvercote, *C. E. Hubbard* 11226; *ibid.*, *W. B. Turrill*. 28, W. Norf.; Wallington, 1922, *J. E. Little* (*B.E.C.*). 30, Beds.; Houghton Regis, Tingrith, and Chalgrave (3 localities), *E. Milne-Redhead* 5268, 5310, 5314. 33, E. Glos.; Elmore, *E. Milne-Redhead* 2462: Daglingworth, *E. Nelmes* 549, 678, 725, 863. 34, W. Glos.; near Hill, *E. Nelmes* 94, 355. 35, Monm.; near Tintern, 1904, *S. H. Bickham* and *E. F. Linton* (*Wats. B.E.C.*). 42, Brecon; Llangasty-Tal-y-llyn, *E. Milne-Redhead* and *H. K. Airy Shaw* 5474. 57, Derby; near Calver, *J. Brown*. 63, S.W.Yorks.; Fishlake, near Thorne, *S. P. Rowlands*. 64, M.W.Yorks.; Copgrove, *E. C. Wallace* 5145.

H.33, Ferm.; shore of L. Erne, *D. Meikle*.

Krechetovich, V. I.: 1935: *Fl. SSSR*, *3*, 152, 155.
Kükenthal, G.; 1909: *Engl. Pflanzenreich*, *4*, *20*, 160.
Langhe, J. E. De; 1944: Sur le groupe du *Carex muricata* L. en Europe; *Bull. Soc. R. Bot. Belg.*, *76*, 37-50.
Mackenzie, K. K.; 1923: Notes on *Carex*, xiii. *Bull. Torr. Bot. Club*, *1*, 346-347.
——; 1931: *N. Amer. Fl.*, *18*, 109.

A CONTRIBUTION TO THE ADVENTIVE FLORA OF SOUTHAMPTON

J. P. M. Brenan, M.A.

Surprisingly, perhaps, the number of species of alien plants hitherto recorded from Southampton is not as large as the size and importance of the port might lead one to expect. A very useful list, by J. F. Rayner, of those found in Hampshire and the Isle of Wight appeared in *Proc. I.O.W. Nat. Hist. Soc., 1*, 229-274, 1925, and a few records additional to this list occur in Rayner's *Suppl. Townsend's Fl. Hants.*, 1929.

While travelling by rail from Bournemouth to London on 14th July 1939, I broke my journey at Southampton and spent an hour or so pleasurably botanising, with results that form much of the basis for this paper. One area in particular was occupied by an adventive flora of quite remarkable richness and variety; this area was a large tract of waste land that lies on the seaward side of the main Southern Railway line between Southampton Central (formerly Southampton West) station and Millbrook; in the following list all plants, unless otherwise stated, were collected in this area. In a good many instances the plants were small and sometimes insufficiently developed for certain determination, and it was intended to pay another visit to the area later that year; the outbreak of war in the autumn unfortunately frustrated this plan.

On 6th September 1941, a second visit was successfully made by the writer accompanied by the Rev. N. E. G. Cruttwell and Dr J. N. Mills. The flora had become appreciably poorer in the interval, and most of the interesting species seen on the first visit had gone. In spite of this, however, a number of very interesting additions were made.

It is worth noting that on the first visit the great majority of the adventive flora was such as might occur as weeds in grain-fields in the eastern Mediterranean region, e.g., Syria or Palestine. It is likely that their presence was owing to waste from a large adjacent flour-mills being deposited here. The North American element in the flora was negligible, being clearly represented in the main area only by a solitary plant of *Ambrosia trifida*. By the second visit the Mediterranean element had greatly decreased while several of the additions were plants native of North America.

In the following list the year or years in which each species was seen are given. For the records of 1939 I alone am responsible; those of 1941 are to be attributed to the Rev. Cruttwell, Dr Mills and myself jointly. Where no locality is given the plant concerned was observed on the area between Southampton Central station and Millbrook, as described above, and all the localities are in District VII, Sub-district (2), as defined by

Townsend, *Fl. Hants.*, Ed. 2, 1904. Voucher specimens of all the plants mentioned are preserved in Herb. Brenan, unless otherwise noted; those seen in 1941 are often also represented in the herbaria of my companions on that visit, and where one or both of the latter herbaria are cited, it implies that the plant in question is not in Herb. Brenan.

Mr C. E. Hubbard kindly named some of the grasses and has written a note on one of them, Mr G. M. Ash confirmed an *Epilobium*, and the late Mr A. L. Still examined two mints; to these botanists my thanks are owing for their valuable help. For most of the other determinations I must be held responsible. Finally there is the pleasure of sincerely thanking my two friends for all their aid and companionship on the 1941 visit and at other times, and not least for the trouble they have taken in facilitating subsequent examination of specimens in their herbaria.

49/5. SISYMBRIUM IRIO L. 1939.

49/6b. SISYMBRIUM OFFICINALE (L.) Scop. var. LEIOCARPUM DC. 1941. Specimen not kept.

49/13. SISYMBRIUM LOESELII L. 1941.

54/20. BRASSICA GALLICA (Willd.) Druce. 1939 (Herb. Brenan); 1941 (Herb. Cruttwell & Herb. Mills).

54/22. BRASSICA GENICULATA (Desf.) J. Ball (*Hirschfeldia incana* (L.) Lagrèze-Fossat). 1941 (Herb. Cruttwell & Herb. Mills).

55/1b. DIPLOTAXIS TENUIFOLIA (L.) DC. var. INTEGRIFOLIA Koch. 1941.

61/4. LEPIDIUM RUDERALE L. 1941 (Herb. Cruttwell & Herb. Mills).

61/22. LEPIDIUM DENSIFLORUM Schrad. 1941 (Herb. Mills).

70/2. NESLIA APICULATA Fisch., Mey., & Avé Lall. (*Vogelia apiculata* (Fisch., Mey., & Avé Lall.) Vierh.). 1939. Several fine plants of this species were seen. For a note on its characters and distribution, see C. I. & N. Y. Sandwith in *B.E.C. 1935 Rep.*, 102, 1936.

72/1. MYAGRUM PERFOLIATUM L. 1939.

76/3. RAPISTRUM RUGOSUM (L.) All. 1941 (Herb. Cruttwell).

85/2b. RESEDA LUTEA L. var. PULCHELLA J. Muell. 1941 (Herb. Cruttwell).

95/2(2). **Saponaria oxyodonta** (Boiss.) Boiss., *Fl. Or.*, *1*, 525, 1867: *Vaccaria oxyodonta* Boiss., *Diagn.*, *Ser. 2*, *1*, 68, 1853. 1939. Several plants of this species, not hitherto recorded from the British Isles, were seen. Its resemblance to the not uncommon adventive species, *S. Vaccaria* L., is most marked, and it may well have been passed over or misidentified in the past, so that botanists will do well to re-examine carefully their material of *S. Vaccaria*. *S. oxyodonta* differs principally in the calyx, whose teeth are lanceolate, with a conspicuous keel and narrow, whitish, membranous margins which disappear towards the apex. *S. Vaccaria* has triangular calyx-teeth with broad scarious margins which reach the apex, and the petals are larger and obovate. The resemblance between the two species is such that it might, perhaps, be held that *S. oxyodonta* represents no more than an oriental race or variety of *S. Vaccaria*, but such authorities on the flora of the Orient as Boissier, Post, and Dinsmore agree in maintaining the two as distinct species, and I am willing for the present to follow them. *S. oxyodonta* occurs in or has been recorded from Cyprus!, Syria, Palestine!, Iraq!, Afghanistan and Baluchistan!. The exclamation-marks indicate that I have seen specimens from those areas so marked.

96/4. SILENE NOCTIFLORA L. 1939. Specimen not collected.

96/7. SILENE GALLICA L. 1939 (Herb. Brenan); 1941 (Herb. Cruttwell & Herb. Mills).

100/14. CERASTIUM DICHOTOMUM L. 1939.

117/7. MALVA NICAEENSIS All. 1939 (Herb. Brenan); 1941 (Herb. Cruttwell & Herb. Mills).

117/9. MALVA PARVIFLORA L. 1939.

152/2. TRIGONELLA FOENUM-GRAECUM L. 1939.

152/13. TRIGONELLA CAELESYRIACA Boiss. 1939. Several plants of this striking species occurred, all of which apparently come under forma *genuina* Sirjaev, *Generis Trigonellae Revisio Critica*, *2*, 19, 1929. The direction of the developing legumes after flowering is variable. Sirjaev remarks that the pedicels after anthesis are at first more or less deflexed, and then afterwards erect themselves. However, an examination of material in the Kew Herbarium shows that the deflection of the pedicels is by no means strictly correlated with the stage of development of the legumes. Thus, a specimen collected by Boissier in Syria in May 1846 has the legumes erect at all stages up to a length of 6 cm., while *Dinsmore* 8939, collected from fields near Jerusalem, has numerous legumes at various stages up to a length of 4.5 cm., all becoming deflexed immediately after flowering. It seems that the matter is more complex than Sirjaev implies, and it would be interesting if studies could be made on living populations of this species. In the only Southampton specimen with well-developed legumes, they are still deflexed at a length of 4.6 cm.

153/4b. MEDICAGO HISPIDA Gaertn. var. DENTICULATA (Willd.) G. & G. 1939.

153/4f. MEDICAGO HISPIDA Gaertn. var. CONFINIS (Koch) Burnat. 1939.

154/4. MELILOTUS INDICA All. 1939.

155/34. TRIFOLIUM ECHINATUM M.B. On a smaller patch of waste ground, not far from the main area, near Southampton Central station, 1941.

163/1. GALEGA OFFICINALIS L. The normal plant with purple flowers on waste ground between Southampton Central station and the docks, 1939.

163/1b. var. **albiflora** Boiss., *Fl. Or.*, *2*, 191, 1872. Growing with the normal plant, 1939. Although the white-flowered form of this species has been previously noted in Britain (e.g., in *B.E.C. 1937 Rep.*, 473, 1938), the above varietal name for it appears to be an addition to the British list.

165/1. Colutea arborescens L. 1941 (Herb. Cruttwell & Herb. Mills).

169/–. Scorpiurus sp. A plant of this unmistakable genus was seen in 1941. Under cultivation, however, it unfortunately died before producing the fruits necessary for specific determination.

170/3. Coronilla scorpioides (L.) Koch. 1939 (Herb. Brenan); 1941 (Herb. Cruttwell).

175/1. Cicer arietinum L. 1939.

176/5. Vicia villosa Roth. 1941 (Herb. Cruttwell & Herb. Mills).

177/1. Lens culinaris Medic. 1939 (Herb. Brenan); 1941 (Herb. Mills).

178/9. Lathyrus Aphaca L. 1941 (Herb. Cruttwell).

178/13. Lathyrus inconspicuus L. 1939; 1941.

178/18. Lathyrus Cicera L. 1939.

220/7(2). Epilobium adenocaulon Haussk. Waste ground near the entrance to Southampton docks, not far from Southampton Central station, 1939. Confirmed by G. M. Ash.

220/9. Epilobium lanceolatum Seb. & Maur. 1941 (Herb. Cruttwell).

249/2. Ammi Visnaga (L.) Lam. 1941.

250/1. Carum Carvi L. 1941. Not flowering and no specimen collected.

283/1. Caucalis leptophylla L. 1939.

296/10. Galium tricorne Stokes. 1939.

298/5. Asperula arvensis L. 1939. Many plants seen, one with flowers almost white.

306/1. Dipsacus sativus (L.) Honck. 1941 (Herb. Cruttwell & Herb. Mills).

307/2. Cephalaria syriaca (L.) Schrad. 1939.

339/4. Ambrosia trifida L. 1939. Only a single plant seen.

354/1. Galinsoga parviflora Cav. A weed of cultivated ground in Southampton docks, 1939.

368/3. Anthemis arvensis L. On a railway track by the Solent Flour Mills, Southampton docks, 1939.

378/16. Artemisia biennis Willd. 1941.

395/3b. Carduus pycnocephalus L. var. **arabicus** (Jacq.) Boiss., *Fl. Or.*, *3*, 521, 1875; *Carduus arabicus* Jacq., *Icon. Pl. Rar.*, *1*, 16 et icon, 1781-6; Jacq. ex Murr., *Syst. Veg.*, 724, 1784 (with reference to *Icon. Pl. Rar.*); Jacq., *Coll.*, 56-7, 1786. 1939. This variety, recorded from Egypt, Palestine, Syria, Persia, Mesopotamia and Arabia, differs from typical *C. pycnocephalus* in the often dwarfed habit, in the more narrowly winged stems which are naked above, the less divided leaves, the oblong-lanceolate phyllaries much shorter than normal with the nerve hardly apparent and tapering at apex into a very short prickle, and the innermost phyllaries tinged with purple at apex.

405/25. CENTAUREA DIFFUSA Lam. 1941. A remarkably distinct-looking knapweed, about 60 cm. high, several-stemmed from the base, profusely branched above and forming a dense, bush-like growth with very numerous, small, spiny capitula with white florets.

405/31. CENTAUREA SOLSTITIALIS L. 1941.

405/32. CENTAUREA MELITENSIS L. 1939.

405/35b. CENTAUREA PALLESCENS Del. var. HYALOLEPIS (Boiss.) Boiss. 1939.

405/40. CENTAUREA IBERICA Trev. 1941.

493/2. LAPPULA ECHINATA Gilib. 1941.

509/1. ECHIUM VULGARE L. 1941.

524/1. HYOSCYAMUS NIGER L. 1941. Specimen not collected.

532/16. LINARIA CHALEPENSIS (L.) Mill. 1939.

558/–. MENTHA sp. A spicate mint occurred in 1941, which the writer, after comparison with the material named by the late Mr J. Fraser in Herb. Druce, sent to the late Mr A. L. Still as ×*M. niliaca* Jacq. var. *nemorosa* (Willd.). Mr Still replied:—"Not *nemorosa* Willd., but may well come into the rubbish-heap of *nemorosa* (auct.)." It is to be hoped that some student of the genus may be able to unravel the intricacies of these *longifolia*-like mints, which, although often doubtless only throw-outs from the kitchen-garden, are not uncommon on waste land and show a disposition to hold their ground there.

558/14b. MENTHA PULEGIUM L. var. ERECTA (Mill.) Martyn. 1941. Confirmed by the late Mr A. L. Still.

571/2. LALLEMANTIA IBERICA (M.B.) Fisch. & Mey. 1939. Two plants of this unusual labiate were seen. It is readily recognisable by the cuneate-based bracts, each divided towards its apex into six to eight aristate teeth, by the fifteen-nerved calyx borne on a transversely flattened pedicel, and by the broad, obtuse-apiculate upper calyx-tooth. The corolla of the Southampton plants was cream-coloured, but Post's *Fl. Syria, Palestine & Sinai*, ed. 2, *2*, 366-7, 1933 (revised by Dinsmore) remarks that the corolla is blue, rarely yellowish.

575/1. SIDERITIS MONTANA L. 1941 (Herb. Cruttwell).

588/1. PLANTAGO INDICA L. 1941 (Herb. Cruttwell & Herb. Mills).

596/4. AMARANTHUS CHLOROSTACHYS Willd., *sens. lat.* Waste ground near Southampton Central station. 1941 (Herb. Cruttwell & Herb. Mills).

596/6. AMARANTHUS RETROFLEXUS L. 1941 (Herb. Cruttwell & Herb. Mills).

600/8. CHENOPODIUM ALBUM L.; var. EU-ALBUM (Ludwig) Schinz & Thell. forma CYMIGERUM (Koch) Schinz & Thell. 1939.

600/11b. CHENOPODIUM PRATERICOLA Rydb. var. THELLUNGIANUM Aell. (*C. leptophyllum* auct., non Nutt.). 1941.

600/14. CHENOPODIUM VULVARIA L. 1941.

600/21. CHENOPODIUM HIRCINUM Schrad. 1941.

615/32. POLYGONUM CUSPIDATUM Sieb. & Zucc. 1941 (Herb. Cruttwell).

628/–. EUPHORBIA. A species of this genus occurred in 1939, characterised by bearing most remarkable emergences on the ovary; those take the form of narrowly conical papillae, each tipped by a rather short and very fine hair. It is probable that the plant is referable to *E. cybirensis* Boiss., *Diagn.*, *Ser. 1*, *7*, 89, 1846; *op. cit.*, *Ser. 1*, *12*, 109, 1853; it is said to be common in fields and vineyards in Syria and Palestine, and is also recorded from Turkey, the Aegean Islands and Mesopotamia. The Southampton material is so exiguous that there is an element of doubt about the determination, especially as similar outgrowths on the ovary and capsule occur in *E. akenocarpa* Guss., although in the last-named species they are much sparser than in *E. cybirensis*.

754/1. PANICUM MILIACEUM L. On a smaller patch of waste ground, not far from the main area, near Southampton Central station, 1941. Specimen not collected.

756/2. SETARIA VIRIDIS (L.) Beauv. 1939.

756/4. SETARIA VERTICILLATA (L.) Beauv. 1941 (Herb. Mills).

763/2. SORGHUM HALEPENSE (L.) Pers. On a smaller patch of waste ground, not far from the main area, near Southampton Central station, 1941 (Herb. Cruttwell & Herb. Mills).

765/1. PHALARIS MINOR Retz. 1939. Plant densely tufted with numerous culms and shorter and fewer-flowered panicles than usual. It probably corresponds with var. *gracilis* (Parl.) Parl., which, Mr C. E. Hubbard informs me, is merely an ecad, however.

777/9. PHLEUM SUBULATUM (Savi) Aschers. & Graebn. 1941. Determined by Mr C. E. Hubbard.

785/1. APERA SPICA-VENTI (L.) Beauv. On waste ground near Southampton Central station, 1939.

794/5(2)b. AVENA LUDOVICIANA Durieu var. **glabrescens** Durieu ex Godron in Grenier & Godron, *Fl. France*, *3*, 513, 1856; *Avena sterilis* var. *Ludoviciana* subvar. *glabrescens* (Durieu) Husnot, *Gram.*, 39, 1897; *Avena sterilis* subsp. *Ludoviciana* var. *glabrescens* (Durieu) Thellung in *Viertelj. Naturf. Ges. Zürich*, *56*, 314, 1911; *Avena sterilis* subsp. *Ludoviciana* var. vel forma *glabrescens* (Durieu) Thellung in *Rec. Trav. Bot. Néerl.*, *25a*, 433, 1928; *Avena macrocarpa* race *A. Ludoviciana* var. *glabrescens* Rouy, *Fl. France*, *14*, 126, 1913.

This interesting oat occurred in 1941, and has been determined by Mr C. E. Hubbard, who kindly contributed the above synonymy and the following notes on the plant.

Distribution: Here and there with the type in S.W. France (both of which have been introduced there), and, according to Malzew (*Bull. Appl. Bot. Genet. & Pl.-Breed. Suppl. 38*, 374, 1930), in Tauria, Ucrania, Ciscaucasia, Transcaucasia, Georgia, Afghania and Persia.

Distinguished from the typical variety by the lemmas (flowering glumes) being glabrous except for the bearded basal callus.

824/15. POA PERSICA Trin. 1939. Confirmed by Mr C. E. Hubbard.

827/1(2). BROMUS GUSSONEI Parl. 1939.

827/2. BROMUS RIGIDUS Roth. 1939.

827/9. BROMUS INERMIS Leyss. 1941 (Herb. Cruttwell).

827/13. BROMUS UNIOLOIDES H.B.K. 1941 (Herb. Cruttwell).

827/16b. BROMUS SECALINUS L. var. HIRTUS (F. Schultz) Hegi. Waste ground in Southampton docks, 1939.

827/20. BROMUS MOLLIFORMIS Lloyd. 1941 (Herb. Cruttwell).

827/29. BROMUS JAPONICUS Thunb. (*B. patulus* M. & K.). Railway line near the Solent Flour Mills, Southampton docks, 1939.

829/2a. LOLIUM TEMULENTUM L. var. MACROCHAETON A. Br. 1939. Plants with both rough and smooth culms occurred, but all have been determined by Mr C. E. Hubbard as this variety.

829/2b. LOLIUM TEMULENTUM L. var. LEPTOCHAETON A. Br. (var. *arvense* (With.) Bab.). 1939 (culms rough only). Determined by Mr C. E. Hubbard.

829/4. LOLIUM MULTIFLORUM Lam. 1939.

832/1(2). TRITICUM MONOCOCCUM L. 1941. Determined by Mr C. E. Hubbard.

835/4. HORDEUM HYSTRIX Roth (*H. Gussoneanum* Parl.). 1939.

Besides the plants enumerated in the preceding list, a very handsome composite with capitula of sky-blue florets has so far defied determination, owing to the inaccessibility of material for comparison. A specimen of this plant was kindly sent to me by Mrs J. V. Phelps of Bournemouth in June 1941, who had collected it on waste ground near Southampton docks. On our visit in September of that year my companions and myself saw what was probably the self-same plant between Southampton Central station and Millbrook. There was but one plant, and that in a suggestively decapitated condition, but still flowering on basal shoots.

[This has since been determined by Mr W. R. Philipson of the British Museum as *Perezia multiflora* (Humb. & Bonpl.) Less., a native of S. America.]

REVIEWS

The Flora of Uig. Edited by M. S. CAMPBELL. Pp. 63 with 5 plates from photographs and 2 maps. Arbroath: T. Buncle & Co. Ltd., 1945; 10/6 post free.

The title of this book is somewhat misleading as it is not a local flora in the usually accepted sense of the term nor does it cover the whole of the Parish of Uig. It is better described by its sub-title " A Botanical Exploration," being the account of an expedition undertaken by Miss Campbell and five others in the summer of 1939. It is refreshing to discover that an area so little known botanically as Uig could so recently still exist in the British Isles. The book brings out well the botanical peculiarities of this area, which I visited this summer with two of the members of the previous expedition. These peculiarities lie not in the presence of any great rarities (though two species, *Orchis hebridensis* and *Euphrasia Campbellae*, both discovered by the editor and the latter perhaps endemic to the Outer Hebrides, occur in some quantity), but in the absence or rarity of many common or expected plants (e.g. *Festuca ovina, Deschampsia caespitosa* and many common weeds), in the peculiar habitats in which many species occur (e.g. *Silene acaulis* on top of sea cliffs, *Coeloglossum viride* in sandy pastures near the sea, etc.), and in the correlated peculiarities of the plant communities.

The book is divided into nine sections of which the first is a short introduction contributed by the editor. The next three sections contain the main results of the expedition, consisting of a comprehensive account of the vascular plants of the area, being a list of the species found (contributed by the editor), an account of the vegetation, and notes on critical species (the two last by A. J. Wilmott). The list includes some 300 species, and its completeness is attested by the fact that the additions made this year (when areas not previously visited were mainly investigated) only number about 25 species. Indications of frequency and often of habitat are given but the usefulness of the list to workers in the field is greatly impaired by the almost complete absence of localities. It is not clear why, for such a plant as *Epilobium angustifolium*, " In one locality only " is preferred to the more informative (and shorter) " Valtos Glen."

The section on vegetation is an example of the older type of descriptive ecology which has unfortunately fallen prematurely into disrepute among professed ecologists. The facies and distribution of many of the plant communities of the British Isles are still very inadequately known and descriptions and lists of the kind given in this book are of great value both for comparison with other districts and for the elucidation of the autecology of individual species. Attention may be drawn to the transitional community of mixed dominants, Molinii-Nardetum, here described (Molinii-Callunetum is also of very wide occurrence in Uig, though strangely omitted*). Too many authors have disregarded this type of community being perhaps biassed by an *a priori* idea of dominance. Mixed communities are very widespread and merit more attention than they have received in the past.

The systematic notes are of more than local interest and should give valuable indications for further study, both in Uig and in other areas. The key to the known British subspecies of *Festuca vivipara*, a species which seems to have been almost completely neglected in this country, may be especially mentioned in the hope that it may be re-published in this Report.

The five remaining sections contain lists of the lower plants collected and a list of references. The lower plants were less studied and the lists are admittedly incomplete but the number of lichens new to the Hebrides would seem to indicate that the islands would be a promising field for a lichenologist.

The work will be indispensable to all botanists contemplating a visit to the Outer Hebrides and contains much of interest to all those interested in British plants. It may be hoped that Miss Campbell's example in producing an account such as this one will be followed by others. A series of similar works on other (not necessarily unknown) districts would be of great value in elucidating many problems connected with British plants. The fear of publishing incomplete work is too often a deterrent and many results, valuable as a basis of further study, are thus lost.

E. F. WARBURG.

Wayside and Woodland Ferns. [The late] EDWARD STEP, F.L.S., revised by A. BRUCE JACKSON. Pp. 144, with 64 colour plates by Mabel E. Step and 79 plates from photographs and drawings. London and New York: F. Warne & Co., Ltd., 1945; 12/6 net. [6⅞″ × 5″; cloth gilt, round corners.]

There is no longer need to eulogise the late Mr Step's work as middleman and interpreter to the nature-lover of the work of the pure scientist. That is, as he once told me, how he regarded his work, and his share in Messrs Warne's *Wayside and Woodland Series* is some of his best work. The present edition has been revised with the help of experts; in it the illustrations have been improved and increased, and the text has been slightly modified to reflect modern developments.

It is an account of the normal development and form of the British ferns, horse-tails, club-mosses and quillworts. The abnormalities so beloved by fern specialists are ignored and must be sought elsewhere.

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*In hill areas which, owing to a recent illness, I was unable to visit.—A. J. WILMOTT.

In this way the account is made clearer for those whose needs the series caters, viz., the field naturalist.

There are still minor errors which need correction, but the chief criticism to be made is that the names have been brought into line with the modern scientific nomenclature without the necessary alterations being always made in the text to correspond. Thus the statement that the Bracken is the sole British representative of a large genus, whose name *Pteridium*, from the Latin *pteron* . . . is simply untrue; it was true for *Pteris* (except that *pteron* is Greek). Similarly no attempt has been made to bring the derivations given for the scientific name into line with the new nomenclature used. The attempt to put new wine into old bottles is always a hazardous proceeding, and some parts need more re-writing to correspond with the classification adopted. Mr Step's edition was more consistent in itself; the next edition should have these blemishes removed somehow.

The illustrations are a valuable part of the work, but it is perhaps a pity that so few of them are placed with the account of the species they represent; a little less even spacing throughout the book might be worth while to get text and pictures together.

It is a useful book and makes pleasant reading; well worth keeping in print.

A. J. Wilmott.

Flowers in Britain—wild, ornamental and economic—and some relative in other lands. L. J. F. Brimble, B.Sc., F.L.S. Pp. x, 393, 167 " figures " and 18 col. pl. London: Macmillan & Co., 1944; 12/6.

After 36 pages of introductory matter concerning " The Flowering Plant " a great deal of interesting information of all kinds about plants to be met with in Britain is for the most part grouped under families in Bentham and Hooker Order. The illustrations are in general good, but that of " A Buttercup Plant " (p. 9) dreadful: certainly not like any buttercup known to me. Certainly a useful book to a very large number of people, and one which will stimulate interest in plant life.

A. J. Wilmott.

Taschenatlas der Schweizer Flora. Edouard Thommen. Pp. xiv, 274. Basel: Birkhäuser, 1945. [7½" × 4½".] Also in French as " Atlas de Poche de la Flore Suisse."

This is a nicely produced little book containing over 3000 small but characteristic illustrations of plants, often with enlargements of important detail. The short introduction explains that the aim has been to illustrate the flora in the smallest possible space in such a way that the individuality of each plant is so depicted as to make recognition simple. Descriptions must be sought in other Floras. It is a companion to the School Flora of Switzerland by Binz, in German, ed. 4, 1940, and the Flora of Switzerland by Binz & Thommen, in French, 1941. Some subspecies and varieties are included, and few important species other than *Rubi* are omitted. The illustrations form two bands across each page, and the Latin names, followed by the German and French ones, and sometimes by an indication of the colour of the flower, are given below each band of drawings. After the illustrations are 16 pages of remarks on localities followed by the index of Latin and popular names. It is a *multum in parvo* which should be invaluable to the general botanist visiting the rich flora of Switzerland.

A. J. Wilmott.

ABSTRACTS FROM LITERATURE

Abstracts are by the Editor except where indicated by [L.] = J. M. Lambert, [S.] = F. A. Sowter, and [Wa.] = A. E. Wade, to whom thanks are given for their assistance. Further assistance is desired in order that a wider field may be covered.

When only one entry is made in this Report from a single paper the full reference is given with the entry, in order to avoid both unnecessary printing and cross-reference: the usual method of citation by reference to the Bibliography is retained when more than one reference is made to the same paper.

Note to Contributors: It would be a great convenience to the Editors if contributors would send in their Abstracts, and any necessary References for the Bibliography, on slips of uniform size, the size desired being 8 inches by 5 inches, the long edge to be treated as the top of the page. A separate slip for each item permits the easy sorting of the MS. without the transcription which is otherwise too often necessary in the preparation of copy for the printer. The uniform slips can be easily filed and will be available for future reference, thus enabling the Editors to avoid repetition and to make helpful references to previous notes.—Ed.

(A) TOPOGRAPHICAL

2, E. Cornwall; Camel Estuary.—Hepburn, Ian. (1945: *J. Ecol.*, *32*, 180-192) gives an exhaustive account, with plant lists of "The Vegetation of the Sand Dunes of the Camel Estuary, North Cornwall." The flora is contrasted with that of the dunes in a number of other places in Britain.—[Wa.] The sand is rich in calcium carbonate, always over 50% and said to be over 80% at Harlyn Bay.

6 & 34, N. Somerset and W. Gloucestershire.—Sandwith, Cecil I. (1945: Bristol Botany in 1944; *Proc. Bristol Nat. Soc.*, *27*, 14-18) gives an account of the more interesting records made in 1944.—[Wa.]

7, N. Wiltshire; Marlborough.—*The Report of the Marlborough College Natural History Society*, No. 93, 9-10, 1944, contains the yearly flower list and phenological records.—[Wa.]

17, Surrey; Bookham.—The vegetation of the chain of ponds at Bookham is described by Castell, C. P. (1945: *London Nat. for 1944*, 15-22).

18, S. Essex; Epping Forest.—The Survey of the London Natural History Society has produced an account of the vegetation and a table of the distribution of the flowering plants in the 14 areas into which the Forest is subdivided (*London Nat. for 1944*, 40-55).

21 (etc.), London.—Botanical Records for the London area are given by Lousley (1945 A; 1945 B). They include additional records from bombed sites.

27, 28, NORFOLK.—Libbey, R. P. (1944: *Trans. Norf. Norw. Nat. Soc., 16*, 76-77) publishes a brief note on the introduction and spread of certain alien species in the county (*Setaria viridis* (L.) Beauv. and *Panicum Crus-galli* L., both widely distributed; *Panicum capillare* L. var. *occidentale* Rydb., *Setaria glauca* Beauv., *Amaranthus retroflexus* L., *Kochia scoparia* (L.) Schrad. and *Salsola Kali* L. var. *Tragus* L., less frequent). The abundance of an alien dodder (*Cuscuta pentagona* Englm.) in a field of carrots is recorded.—[L.] [see *B.E.C. 1943-44 Rep.*, 693-4. The *Salsola* was, presumably, *S. pestifera* Nelson.—ED.]

28, W. NORFOLK.—Swann, E. L. (1943: *Trans. Norf. Norw. Nat. Soc., 15*, 426-7) publishes notes on certain uncommon and rare plants observed here in 1943; habitats are given for *Sagina ciliata* Fr., *S. nodosa* (L.) Fenzl. var. *glandulosa* Bess., *Lathyrus Nissolia* L., *Utricularia intermedia* Hayne, ×*Carex axillaris* Good., *C. serotina* Mérat, *C. diandra* Schrank, *Apera interrupta* Beauv., *Potentilla recta* L., *Calamagrostis epigeios* (L.) Roth, and *Pilularia globulifera* L. The arable weeds *Silene anglica* L., *Lychnis Githago* (L.) Scop., *Legousia hybrida* (L.) Delarbre and *Linaria Elatine* (L.) Mill. are reported to have increased in the district.—[L.]

——; ROYDON COMMON.—Swann, E. L. (1944: *Trans. Norf. Norw. Nat. Soc., 16*, 23-6) gives a brief account of Roydon Common, W. Norfolk, and lists the species occurring in the dry heath, wet heath, reedswamp, carr and bog regions of this area respectively.—[L.] Petch, C. P. (1945: Vegetation of Roydon Common; *J. Ecol., 32*, 143-146) describes the vegetation of this common. It occupies an area of about 2 square miles, about two-thirds is elevated and dry, and dominated by *Calluna vulgaris* and *Pteridium aquilinum*. A remarkable feature is the persistence of grass-heath with *Agrostis stolonifera* ("*alba*") and *Festuca ovina* co-dominant, on an area last cultivated in 1918. "The vegetation of the wet areas has the nature of a valley bog developed in a region of impaired drainage with the soil water lacking in mineral salts. Peat is from 9 to 18 in. deep." *Erica Tetralix* is dominant, with *Molinia caerulea* and *Sphagnum* spp. locally dominant. Wetter parts of the bog support *Myrica Gale* and taller marsh plants, whilst around streams draining the bog is a dense thicket, locally known as carr, with *Betula alba* dominant. Full lists of the plants on the common are given.—[Wa.]

39, STAFFORDSHIRE.—Edees, E. S. (1945: Report of the Botanical Section; *Trans. N. Staffs. F.C., 79*, 77-85) contributes plant notes and records for 1944.—[Wa.]

40, SHROPSHIRE.—"Records of Bare Facts, for the year 1942"; *Caradoc and Severn Valley Field Club*, No. 52, 4-6 (1945) gives a number of records of new localities of the rarer plants.—[Wa.]

46, CARDIGAN; FIGYN BLAEN BREFI.—Davies, E. G. (1945: Figyn Blaen Brefi: A Welsh Upland Bog; *J. Ecol., 32*, 147-166) gives a detailed account of the bog at Blaen Brefi, near Llanddewi Brefi, Cardiganshire. "Formerly the vegetation was dominated by *Scirpus caespitosus*, but the lowering of the water table has caused vegetational changes, so that now a Callunetum forms a continuous band down the centre of the bog. . . . Preliminary investigation of the peat suggests that Figyn Blaen Brefi developed from Phragmites swamps, in depressions in the boulder clay. An early *Pinus-Betula* co-dominance gave way subsequently to woods in which *Alnus* and *Quercus* were co-dominant, with *Betula* and *Ulmus* still present. These woods appear to have been replaced by a vegetation in which *Eriophorum angustifolium* was dominant. Still later, a Scirpetum was developed, parts of which are still actively growing. It is from the Scirpetum that the present erosion complex has been formed."—[Wa.] At present the bog presents an erosion complex in retrogression, with *Eriophorum* attempting recolonisation in the wetter areas and with Scirpetum succeeding the erosion complex over the largest area of the bog, locally broken by Molinietum which borders the bog on the hill slopes.

48, MERIONETH; CADER IDRIS AND CRAIG-Y-BENGLOG.—The study of the distribution of floristically rich localities in relation to bed-rock; E. Price Evans (1945). The floristically rich areas are determined by the presence of lime in a form (calcite) readily available for plants. They are " situated on or about the Basic Volcanic series of rocks which form part of the ' ring-fence of volcanoes ' on the southern and eastern flanks of the Harlech Dome " of Cambrian rocks. In addition to the ecological lists given, there is an account (pp. 176-177) of rare species recorded for the area. The presence to-day of some of these needs confirmation (see *Plant Records*).

61-65, YORKSHIRE.—" Some early records of Yorkshire plants " are set out by Beckerlegge, J. E. (1945: *Naturalist*, 93-96). They are taken from MS. notes made by Doctor Richard Richardson (fl. 1663-1741) of North Bierley, Bradford, in his copy of Ray's *Synopsis*, ed. 2 (1696), now preserved in the National Library of Wales, and antedate the first records mentioned in Lees's *Flora of West Yorkshire*.

64, M.W. YORKSHIRE; AUSTWICK MOSS.—An account of this interesting bog is given by Cheetham, C. A. (1945: *Naturalist*, 117-121). Recent work on a drainage scheme exposed the base of the Moss, showing that the retreat of ice at the close of the glacial period left a layer of stiff clay in which boulders and smaller stones were embedded. This later formed the base of a shallow lake fed by glacier water, and laminated clays, followed by shingle, were deposited. The previously found shell marl, supposed to be the basis of the lake, was a local stream deposit.

——; GRASSINGTON.—An ecological description of Grass Wood and Bastow Wood is given by Smith, A. Malins (1945: *Naturalist*, 105-107) and a list of the rarer plants seen there (during a meeting of the Yorkshire Naturalists) is added by Sledge, W. A. (1945: *l.c.*, 107).

90, ANGUS; CARNOUSTIE.—Parkin, Doris (1944: " Notes on the Flora of Carnoustie," *N.W. Nat.*, *19*. 154-158, pls. 6-7—photographs of *Plantago maritima*, *Armeria maritima* and *Cakile maritima*) mentions the finding of *Ornithogalum umbellatum* " in a hidden corner of the bank." Except for the well-known abundance of *Astragalus danicus* on the sandy maritime pasture, the plants mentioned are mainly the common species.

101, CANTYRE.—Gilmour, J. S. L. (1945) botanized for ten days on West Loch Tarbert and his notes on the plants seen include three new vice-county records.—[S.]. See *Plant Records.*

(B) TAXONOMY AND CLASSIFICATION

CLASSIFICATION.—Parkin, J. (1945: *N.W. Nat.*, *20*, 18-27) in an interesting paper, " The Classification of Flowering Plants," (Angiosperms), discusses the Bentham and Hooker versus Engler and Prantl systems; and advocates the use of Hutchinson's system of classification. A general sketch and the special features of this latter system are described with a recommendation that its adoption be carefully considered.—[S.]

LINNAEAN METHOD.—An interesting study " On the Descriptive Method of Linnaeus " is given by Svenson, H. K. (1945: *Rhodora*, *47*, 273-302, 363-388).

(C) NOMENCLATURE

See *Corrections to B.P.L.*

(D) GENETICS

TRANSPLANT EXPERIMENTS.—Marsden-Jones, E. M., and Turrill, W. B. (1945: *J. Ecol.*, *33*, 57-81) give the " Sixth Report of the Transplant Experiments of the British Ecological Society at Potterne, Wiltshire." No morphological differences between the ramets on the different soils appeared in the case of *Centaurea nemoralis* Jord. f. *radiata albiflora*. In *Silene maritima* With. no morphological changes were observed but the leaves of plants on sand were slightly smaller than those on other soils; the characters—deep anthocyanin, narrow leaves, narrow calyx and essential femaleness remained constant. The large variety of *Plantago major* L. showed some tendency for the gross morphological characters to become similar to those of the small variety when grown on any one soil but the differences between the two were never obliterated. The experiments on *Phleum pratense* L. and *Phleum nodosum* L. are considered as confirming the conclusion that they must be regarded as belonging to two distinct taxonomic species, whatever their origin or cytogenetic relationships. The habit characteristic of prostrate habit of growth of *Solanum dulcamara* L. var *marinum* Bab. has been shown to be genetic and also constant (not plastic) under the different plot conditions of the transplant experiments.—[Wa.]

(E) CYTOLOGY

[Information concerning chromosome numbers extracted from the year's literature will be combined with that for 1946 in the next *Report*. —ED.]

(F) BIOLOGY AND MORPHOLOGY
(General; cf. also *Plant Notes*)

ABNORMAL STRUCTURES IN TREES.—Gurney, R. (1944: *Trans. Norf. Norw. Nat. Soc., 16,* 14-15) describes certain abnormal features observed in certain trees (*Salix* spp.—3 flowering shoots from each bud instead of one, transitional leaf-like bracts with imperfect flowers in male catkins; hazel—elongated female catkins; birch—bisexual catkins; lime, oak, plane and sycamore—tricotyledonary seedlings).—[L.]

ENDEMICS.—Wherry, E. T. (1944: *Ecology, 25,* 247-248) classifies endemics as:—

A. Primary = newly originated increasing in area (for a time at least surrounded by its progenitors (="neo-endemic" of Wynne Edwards, 1937).

B. Secondary = relic-endemics, diminishing in area (often disjunct from the progenitors [or nearest relatives—ED.].

(a) environmentally repressed, i.e., existing in unfavourable surroundings, and liable to "expand its area when brought into an environment sufficiently unlike its native one":

(b) genetically repressed, i.e., abnormally homozygous, and liable not to grow unless the native environment is closely watched:

(c) senescent—"an endemic which is really senescent should, under culture, fail to reproduce its kind or expand its planting at all" [sounds more like moribund—few ancient relict-species are so debilitated—ED.].

WEEDS.—Details of adventive and ruderal species found at several places in Blekinge (Sweden) are given by Holmgren, Bj. (1941: *Bot. Not.,* 65-98).—[Wi.]

ARCTIC PLANTS AND VITAMIN C (l—Ascorbic acid) content.—Knowledge of the antiscorbutic properties of arctic plants would have been valuable on ancient arctic expeditions. A large number of common Greenland species have been investigated for their Vitamin C content by Rodahl, K. (1944: *Trans. B.S. Edinb., 34,* 205-210), the list including the British species. *Honckenya peploides, Rumex Acetosella, Empetrum nigrum, Betula nana* and six of our high mountain rarities.

(G) ECOLOGY
(General: for regional papers see "Topographical" section)

The order followed in this section is that of Tansley, A. G. (1939: The British Islands and their Vegetation).

COLONISATION OF DERELICT AND BOMBED SITES.—Shove, R. F. (1945: *School Nature Study, 40,* 58-60) describes "the flora of a derelict site in the Zoological Gardens, Regent's Park."—[Wa.]

REGENERATION.—E. W. Jones (1945: *J. Ecol., 33,* 44-56) discusses "The Regeneration of Douglas Fir (*Pseudotsuga taxifolia* Britt., in the

New Forest." "Establishment in the area studied seems to be largely determined by the presence of a carpet of coniferous litter, deciduous litter providing unsuitable conditions, bare mineral soil is also suitable." As natural regeneration has been observed in other parts of Britain it is suggested that Douglas Fir may become fully naturalised in this country. "If, however, its behaviour in the New Forest is characteristic, it would only be able to enter our native woodland freely under the rather special conditions provided by the floor of a conifer crop or by the clearance of vegetation by felling, burning, etc. Very slow invasion might of course take place without these special conditions, and this would be assisted by its ability to regenerate on its own litter."—[Wa.]

Oak Wood—in South-East Scotland.—Fenton, E. Wyllie (1945) "Some Factors affecting the Natural Regeneration of Oak in Certain Parts of South-East Scotland"; *Trans. Bot. Soc. Edinb.*, *34*, 213, 232 (Presidential Address). The various factors which affect regeneration are discussed: mortality of young oaks, grazing, soil erosion and leaching after felling, etc.

Grasslands.—The effects of lime, and of acid and basic manures on the hay yield and composition of rotation pastures (i.e., those sown in the course of crop rotation) in Ayrshire, are described by R. Laird (1945: *J. Ecol.*, *32*, 193-203). He finds that the composition of the grass seed mixture sown is of far less importance in influencing the botanical composition of the sward than the lime and phosphate relations of the soil.

Ponds.—See 17, Surrey; Bookham.

Fen and Bog.—Petch, C. P. (1944: *Trans. Norf. Norw. Nat. Soc.*, *16*, 18-22) distinguishes between and notes the occurrence of areas of fen and bog in West Norfolk, and lists typical plants from each.—[L.]

Heather Moor.—An investigation of the ecology of heather moor at St Ives, Bingley (800-825 feet), Yorkshire, is described by Smith, A. Malins (1945: *Naturalist*, 45-48).

Bog.—See 28, W. Norf.; Roydon Common.

Heath.—See 28, W. Norf.; Roydon Common—46, Card.; Figyn Blaen Brefi.

Effect of Sea Floods.—Buxton, A. (1943: *Trans. Norf. Norw. Nat. Soc.*, *15*, pp. 410-9) describes the state in 1943 of the farm crops and natural vegetation in the area covered by the extensive 1938 Norfolk sea floods.—[L.]

Sand-dunes.—See 2, E. Cornw.; Camel Estuary.

(H) DISTRIBUTION

(a) Dispersal: Fruits and Seeds.

(b) History of the British and Neighbouring Floras.

Peat Deposits.—Godwin, H. (1945: *New Phytol.*, *44*, 152-155) describes "A Submerged Peat-bed in Portsmouth Harbour." This was near the Weevil Lake, Gosport, 59 feet below O.D. Tree pollen was predominantly birch and pine: four fruits (figured) are determined as

Betula nana or the two largest perhaps *B. nana* × *pubescens*. Oak pollen 15%; *Salix* 47%. The bed referred to his zone IV. "In view of the many problems which turn upon knowledge of when last the English Channel was dry land, it is clear that further investigation of such deeply submerged Channel peats as these would be of great interest."

"COASTAL PEAT BEDS OF THE NORTH SEA REGION, as indices of land- and sea-level changes," by Godwin, H. (1945: *New Phytol.*, *44*, 29-69). Godwin (1943: see last *Report*) has already indicated that a fair degree of correlation can be made between the results of pollen analyses of peat and archaeological horizons in England and Wales. In the present paper he carries the work further in attempting approximate correlations with deposits across the English Channel and North Sea from northern France to southern Sweden. Six regularly recurring horizons have been sought:—

A.D. 1940. Pr. (Present day). Profiles of bogs still growing.
VIII (zone on English scale) = Pr. to G.H.
B.C. 500. G.H. ("Grenzhorizont"). A regularly recurring surface recognisable in many sections, mostly by stratigraphical evidence: the "Sub-Boreal to Sub-Atlantic transition" at the end of VII. Transition from Bronze Age to Iron Age.
VIIb. = G.H. to Ul. = Neolithic plus Bronze Age.
B.C. 3500. Ul. (Ulmus). Time of sharp decrease from abundant Elm (commonly associated with diminution of Pine and sometimes also of Lime: transition from VIIa to VIIb. The Early Neolithic Age.
VIIa = B.A.T. to Ul. = Late Mesolithic Age.
B.C. 6200. B.A.T. (Boreal-Atlantic transition). Sudden increase of Alder and recession of Pine = transition from VI to VII.
B.C. 7500. H. (Hazel). Beginning of the rapid increase in Corylus pollen = beginning of V.
B.C. 8000. P.G. (Post-Glacial). End of the Late Glacial and beginning of the Post-Glacial, corresponding with increase of ratio of tree pollen to total non-tree pollen = transition IV to V.

The whole series of profiles compared shows considerable similarity in forest history. When the diagrams go back far enough they show basal birch-pine period followed by increase in pine (hazel high, elm, oak, and lime often present); at B.A.T. alder increases (remaining high, and oak-elm-lime preponderate over birch-pine); above this little eventful till at G.H. Lime is reduced, and above it Beech or Birch increases. Discrepancies from this norm may be due to local variations in conditions, as, e.g. conditions favouring Beech, which may be considerable between B.A.T. and G.H. German profiles are very similar to the Dutch: the Beech increases above G.H. but is generally present in the second half of the Atlantic period (practically absent before this). The Hazel curves vary considerably, but do not prevent the conclusion that the profiles as a whole show that post-glacial forest history has followed a fairly uniform course over the whole area.

In Holland there was a rapid marine transgression at the end of VI. The " Old Sea Clay " was laid down, now 5-6 metres below N.A.P. (Mean Sea Level), probably ending in the middle of VII. It was probably laid down behind a coastal bar bearing a big dune system, inside which great raised bogs were formed on the flat clay surface. The southern part of this dune system was largely destroyed A.D. 300-500; after A.D. 900 a new dune system arose which did not prevent the ultimate destruction which led to the formation of the Zuider Zee. The Young Sea Clay which sometimes overlies the upper peat belongs to the 12th and 13th century invasion which formed the Zuider Zee. The whole series shows alternating fresh water and marine deposits with thick peat beds at the bottom, continuous on the landward side and above them fine sands and clays (Old Sea Clay), then the upper peat, above which is sometimes a Young Sea Clay.

In N.W. Germany between Holland and Slesvig-Holstein the low coast and chain of Frisian Islands shows all characteristic of recent submergence. Deep " moorlog " peats from the North Sea floor belong to zones IV and V (pine-birch); some samples from 35 m. indicate VIa. None of the deep submerged peats are younger than this. The ability to date the formation of the various coastal deposits has led to the following conclusions, evidence for which is given in considerable detail:—a rapid and deep sea transgression in VI, slowing off in VII; a retrogression in the period including G.H. and a resumed transgression in the first centuries A.D.

Slesvig-Holstein shows similar but not identical profiles. There is evidence that marine silt was forming at the time of marine transgression in N.W. Germany, due to tilting movements of the isostatic post-glacial land elevation.

In Denmark there is clear evidence of the isostatic land elevation which followed the removal of the ice load which had depressed the earth's crust (i.e. raised beaches and terraces). The melting of the ice led also to a purely eustatic rise in sea level (influx of melted ice water) of about 80 metres. The interplay of eustatic and isostatic factors in countries marginal to the ice produced very complex phenomena, but pollen analysis methods greatly assist interpretation. At the close of the late glacial period, Jutland was continuous with Sweden and the Baltic was an ice-dammed sea with an opening through the Öresund and Great Belt. Regression of ice opened the Baltic at the beginning of the Post-Glacial (the Baltic the cold water " Yoldia Sea "), but land elevation soon closed it again (the Baltic then a fresh water " Ancylus") sea with an opening through central Sweden and later through the Great Belt. The "continuous land period" extended from Late Glacial to the later part of the " Ancylus Sea." The independent fresh water level of the Baltic (Ancylus Sea) was destroyed by the opening of the Sound into the North Sea, the Baltic becoming the "Littorina Sea" (transition VI to VII, i.e. B.A.T.). Recent investigations indicate four maxima of salt water concentration and confirm (a) the early Neolithic age of the late Atlantic transgression, and (b) the correlations of the Ul. horizons in Britain and Denmark. These subdivisions made by pollen analysis methods have since been confirmed by further study of the associated human cultures.

In southern Sweden the changes of sea level are very complex. Investigations confirm the multiple character of the Littorina transgression. Its maximum is placed by Nilsson in the Neolithic period at a later date than the Ul. horizon whereas in Britain and Denmark the Neolithic period coincides fairly closely with the Ul. horizon. In northern France and Belgium few analyses of coastal peats have been made, but Dubois published in 1924 a comprehensive memoir on the coastal deposits of northern France. By their faunal contents he divides the marine transgression following the Würm ice into three stages:—beds 26 to 33 m. deep, mixed Boreal and Atlantic with a few arctic (V/VI), beds 15 to 20 m. deep with a restricted fauna of the upper littoral belt (VIIa), beds with fauna of to-day in *Cardium* sands and *Scrobicularia* clays formed at known times (a) between the 3rd and 8th centuries A.D. and (b) in the 13th century, (VIII).

The whole series of profiles are summarised by Godwin, with a tabulation of results (p. 64) which includes Britain (S.E. and S.W.). In order to correlate the results it is necessary to postulate *either* eustatic rise of about 20 m. between B.A.T. and to-day, compensated in the west of Britain by an equal isostatic land uplift, *or* the formation of a large basin of depression affecting Holland and Germany to a large extent and East Anglia to a lesser degree. Also *either* the submergence in VII continued later in Denmark and southern Sweden than in Somerset and Wales *or* the forest zones were later in spreading to Somerset and Wales than in Denmark (which is less likely since Somerset and Wales are more, and not less, Atlantic than Denmark). Further problems are thus raised for investigation.—[Wi.]

[This interesting paper indicates clearly, however, how the pollen analysis methods are establishing post-glacial history on an ever increasingly sure foundation. Although its results primarily concern neighbouring foreign lands, they will have a great bearing on future developments in this country.—Ed.]

Cleve-Enler, A. (1943: *Bot. Not.*, 41-47) concludes that some diatoms found in high lakes in S. Sweden colonised them in a period before the latest glaciation, when Atlantic and Baltic water was overflowing Sweden to a much greater extent than ever since has been the case.

(c) Various.

Pollen Studies.—In II of "Studies in Atmospheric Pollen," Hyde, H. A., & Williams, D. A. (1945: *New Phytol.*, *44*, 83-94) describe "Diurnal variation in the incidence of grass pollen." The catch of pollen on adhesive slides changed 2-hourly, "has been related to the times of flowering of the principal grasses concerned and to the weather conditions experienced." On fine sunny days *Festuca rubra* and *Holcus lanatus* flowered as a rule but slightly in the morning and profusely in late afternoon. Pollen liberation was crowded into a short period. On dull days anthesis was largely suppressed.

[Pollen analyses of peat are dealt with under section A.]

(K) BIOGRAPHY

Bradley, A. E. (1873-1944).—See W. A. S[ledge] (1945: *Naturalist*, 115). He lived most of his life at Leeds, working specially at *Rubus* and later at *Salix*. Discovered *Rhinanthus spadiceus* ("*R. monticola*": *J.B.*, 1913: 281) on Malham Moor. His herbarium was presented by his widow to the Natural History Museum.

Curtis, William (1746-1799).—The bicentenary of the birth of this famous naturalist was celebrated on his birthday, January 11th, by a special exhibition in the Curtis Museum at Alton and by a meeting and memorial service the following week-end at Battersea, where he was buried. An account of his life and work is given by Lousley, J. E. (1946: *London Naturalist for 1945*, 3-12).

Grindon, Leopold Hartley (1818-1904).—Warne, L. G. G. (1945: *Proc. Bristol Nat. Soc.*, *27*, 27-36) gives an account of his life and contributions to Bristol Botany.—[Wa.]

(L) NATURE CONSERVATION AND RESERVES

27, 28, Norf.—Riviere, B. B. (1943: *Trans. Norf. Norw. Nat. Soc.*, *15*, 392-4) gives an outline of the recommendations submitted to the Nature Reserves Investigations Committee by the Norfolk Committee.—[L.] Gay, C. E. (1944: *Trans. Norf. Norw. Nat. Soc.*, *16*, 3-13: Presidential Address) gives an account of the history and achievements of the Norfolk Naturalists' Trust.—[L.]

57, Derbs.—Claims of the Peak District for schedule as a National Park set out in a brochure issued by the Joint Committee for the Peak District National Park (1944) are reprinted in the *N.W. Nat.* (*20*, 29-34).—[Wi.]

59, S. Lancs.—The Claims of South Lancashire Dunes as a National Nature Reserve are put forward in the *N.W. Nat.* (*19*, 293-294).

(M) MISCELLANEOUS

SYSTEMATIC.

Abstracts previously placed in this section have now been included in *Plant Notes*.

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(As at 20th February 1947)

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To make this list more useful to members it is intended, at a later date, to give the name of the Local Secretary and/or Recorder, and the best Local Flora or local list of smaller areas where no Flora is available, for each vice-county.

It is not possible to give this information at present as the existing list of Local Secretaries and Recorders is out of date and far from complete, and a good deal of work requires to be done to make it ready for publication.

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Whalley; (see 64, Mitton).
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COLLECTED NOTES

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—— (1925). Silene italica, Tillaea aquatica, Solidago cambrica	1	0
Euphrasia septentrionalis, Orchis latifolia, Poa trivialis var. septentrionalis	1	0
—— (1923). Rumex arifolius, Senecio erraticus	1	0
—— (1924). Galium debile, New Taraxaca, Menthae	1	0
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THE BOTANICAL SOCIETY
AND EXCHANGE CLUB
OF THE BRITISH ISLES

REPORT FOR 1945

OF THE

BOTANICAL EXCHANGE CLUB

(CONVENIENTLY ABBREVIATED B.E.C. 1945 REP.)

BY

THE DISTRIBUTOR,
J. DONALD GROSE, Esq.

VOL. XIII. PART II.

PRICE 4s.

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May 1947.

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Applications for Membership should be sent to the Hon. General Secretary, Mr J. F. G. Chapple, Yardley Lodge, 9 Crick Road, Oxford.

SUBSCRIPTIONS

Subscriptions should be paid to the Treasurer, Mr J. E. Lousley, at 7 Penistone Road, Streatham Common, S.W.16. Members who have not yet paid their subscription for 1947 are asked to do so without delay.

MATERIAL FOR THE 1947 REPORT

Papers, Plant Notes, Plant Records, etc., should be sent to either of the Honorary Editors before January 31st 1948.

SPECIMENS FOR IDENTIFICATION

Ordinary specimens for identification may be sent to the Hon. General Secretary. Before sending critical material to the Society's Referees (see 1937 Report, 639-646) members should first ascertain from the Referee concerned whether he is in a position to determine specimens, as the list is now inaccurate. A new and revised list is being prepared which, it is hoped, will be published shortly.

PAST REPORTS REQUIRED

The Society is anxious to obtain copies of B.E.C. Reports for the years 1879, 1886, 1903, 1909, and 1910; Vol. III. parts 2 and 3, Vol. IV. parts 4 and 5, Vol. V. parts 1 and 3. Will anyone in possession of these parts who wishes to dispose of them please communicate with the Hon. General Secretary?

THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES

(VOL. XIII. PART II)

Victoria regia

Floreat Flora

REPORT FOR 1945

OF THE

BOTANICAL EXCHANGE CLUB

(Conveniently Abbreviated B.E.C. 1945 REP.)

BY

THE DISTRIBUTOR

J. DONALD GROSE, Esq.

Printed by T. Buncle & Co. Ltd., Market Place, Arbroath.

May 1947

REPORT OF THE DISTRIBUTOR FOR 1945.

After a lapse of six years, the Exchange Section resumed activities in 1945 and eighteen members contributed two thousand and ninety-nine sheets. This total must be considered satisfactory in view of the fact that it was not generally known that the distribution was to be held. It is probable, now that an annual Exchange is contemplated, that a number of new members will come forward, infusing new life to the Club and themselves benefiting by the discussion of their specimens.

A feature of the Exchange was the donation of a number of gatherings and duplicate sheets by referees. These were sent for division among members without expectation of return parcels, and, in consequence, most contributors were able to receive parcels considerably larger than those they had sent. In this connection the thanks of the Club are due to H. K. Airy-Shaw, C. E. Hubbard, A. B. Jackson, J. E. Lousley, E. Nelmes, N. Y. Sandwith, and W. C. R. Watson.

The Club is grateful also to the following referees (in addition to those named above) for their willing help and useful comments: A. H. G. Alston, G. M. Ash, F. Ballard, J. P. M. Brenan, B. L. Burtt, R. W. Butcher, J. E. Dandy, J. S. L. Gilmour, E. M. Marsden-Jones, R. Melville, E. Nelmes, C. Norman, W. R. Philipson, H. W. Pugsley, P. W. Richards, W. A. Sledge, G. Taylor, W. B. Turrill, T. G. Tutin, D. H. Valentine, A. E. Wade, E. F. Warburg, A. J. Wilmott, and F. R. Elliston Wright.

We are glad to welcome two new contributors to the Club—Dr R. C. L. Burges and Mr R. Lewis, and mention must be made also of the indefatigability of Mr E. C. Wallace, who prepared his parcel on the eve of his departure for the Far East.

Many very interesting plants were collected for the Exchange, and most of the specimens were well-selected and properly prepared. Several correspondents suggest that the proportion of critical plants contributed was rather higher than in some recent years.

J. DONALD GROSE.

Swindon, March 1946.

LIST OF PARCELS RECEIVED.

	Gatherings.	Sheets.	Duplicates.
H. K. Airy-Shaw	6	55	—
G. M. Ash	2	45	—
R. C. L. Burges	8	56	—
E. S. Edees	6	75	—
J. D. Grose	33	411	10
C. E. Hubbard	17	254	101
A. B. Jackson	1	8	32
R. Lewis	21	231	—
J. W. Long	12	100	11
J. E. Lousley	7	96	—
E. Nelmes	5	43	41
F. Rilstone	4	50	—
C. M. Rob	9	105	—
N. Y. Sandwith	1	17	—
W. A. Sledge	6	60	—
National Museum of Wales ...	5	62	—
E. C. Wallace	14	195	—
W. C. R. Watson	4	41	—
	161	1904	195
		2099	

[This Report was prepared with commendable promptitude by Mr Grose, but was perforce held up until Part I of the Report for 1945 was in print. Some of the names used here are not in accordance with the Society's annotated copy of the *British Plant List* and will necessitate further "Corrections" in the next Report.—A. J. WILMOTT, Ed.]

Papaver dubium L. var. with orange-yellow sap. (Ref. No. 4828.) 7, N. Wilts.; waste ground, Holt Junction, May 30th, 1945. In addition to the forms with colourless and orange-yellow sap, I have several times seen a form with pale lemon-yellow sap. It is possible that the apparent difference may be due to varying degrees of atmospheric humidity, but the present plant has been examined on several occasions, and the sap has each time turned to the deep orange-yellow colour on exposure to the air.—J. D. GROSE. "The narrowly dissected leaves together with the oblong-oval shape of the capsule and the orange-yellow sap indicate what is usually known as *P. Lecoqii* Lamotte."—A. E. WADE. "As these specimens, to which slips of paper stained with the sap have been added, clearly show, there are forms of *P. dubium* with orange-yellow sap. In recent years it has been readily assumed that these must be the now very rare plant of the Eastern Counties which Babington knew as *P. Lecoqii* Lamotte. Babington's Poppy, as I understand it, is a fine robust plant with very characteristic oblong capsules which is apparently restricted to calcareous soils, but it seems that Marshall and other well-known collectors have included forms of *P. dubium* under the name. There are probably three or four well-marked poppies with glabrous elongated capsules in this country but I am not yet clear as to their grade or whether they can be fitted to Boreau's or other continental authors' names."—J. E. LOUSLEY.

Sisymbrium volgense M.B. Origin: 34, W. Glos.; Avonmouth Docks. Cultivated at Ely, Cardiff, July 22nd, 1940.—R. L. SMITH; comm. DEPARTMENT OF BOTANY, NATIONAL MUSEUM OF WALES. "Apparently correct, but with rather short silicules."—A. J. WILMOTT and A. B. JACKSON.

Lepidium latifolium L. 41, Glam.; grassy margin of Roath Park Recreation Ground, Cardiff, Aug. 9th, 1945. Most of the large ovate lower leaves die off in this station by the time the plants flower.—Coll. A. E. WADE; comm. DEPARTMENT OF BOTANY, NATIONAL MUSEUM OF WALES. "A less robust plant than usual, otherwise typical."—R. W. BUTCHER.

Rapistrum rugosum (L.) Allioni proles *orientale* (L.) Arcangeli. 16, West Kent; in great abundance for at least a quarter of a mile along the river-wall, Stone Marshes, May 21st and June 24th, 1945. For the grade of this plant I have followed O. E. Schulz' fine monograph of the *Cruciferae* in *Das Pflanzenreich, 4 (105)*, Part I, 252-260, 1919. The "proles" (Latin) is the equivalent of the "race" of some recent continental authors and would appear to connote a limited geographical distribution as a native, as does the "subspecies" of other writers. While *R. rugosum* in its several variations is an increasingly frequent adventive, East and West Kent are the only vice-counties known to me where it appears to be persistent. At Forstal near Aylesford it was "bidding fair to" becoming established when Marshall and Wolley-Dod distributed it in

1894 (*B.E.C. 1894 Rep.*, 436, 1895) and it has been collected there at intervals since. E. F. Linton named the original gathering as *R. orientale* DC. and I gathered this there on Sept. 12, 1945, but then and on Sept. 4, 1938, I also collected the longer styled *eu-rugosum*. Mr F. Rose tells me that *R. rugosum* (aggr.) occurs at intervals all down the Medway and he gave me a flowering specimen collected in company with Dr Cyril West as far down as Upnor in May 1945. At Stone Marshes *orientale* has clearly been established for a considerable number of years and although the plant has some general resemblance to *Brassica nigra* L., it is readily distinguished at a little distance by the paler yellow of the flowers. On July 22, 1945, I found *orientale* in almost equal abundance on the sea-wall between Shornemead Fort and Gravesend. It should be added that there is no reason to suspect that this plant of Mediterranean Europe is native in Kent though its present appearance would suggest that it is likely to prove persistent and that its fruits may be dispersed by water carriage.—J. E. LOUSLEY. " Good specimens of an interesting adventive species which has also been persistent for years in the Felixstowe neighbourhood."—R. W. BUTCHER.

Rapistrum hispanicum (L.) Crantz var. *hirsutum* (Cariot) O. E. Schulz. [" *Rapistrum rugosum* (L.) All. var. *eriocarpum* W. & B."] 11, S. Hants.; waste ground, Southampton, May 1937.—J. W. LONG. " This is *R. hispanicum* (L.) Crantz var. *hirsutum* (Cariot) O. E. Schulz."—J. E. LOUSLEY.

Viola contempta Jord. [" *Viola* sp."] (Ref. No. 1101.) 35, Monm.; in cornfield, " Warfields," Staunton Road, Monmouth, June 2nd, 1945. —R. LEWIS. " These specimens agree much better with the majority of those labelled *V. contempta* Jord. by Drabble than with those named *V. Lloydii* Jord."—A. H. G. ALSTON.

Viola segetalis Jord. f. *obtusifolia* (Jord.) Drabble. [" *Viola* sp."] (Ref. No. 1102.) 35, Monm.; in cornfield, " Warfields," Staunton Road, Monmouth, June 2nd, 1945.—R. LEWIS. " These plants are not quite uniform. Those with large flowers do not appear to differ specifically from 1101, and those with smaller flowers are most like specimens from Alvington (v.-c. 34) collected by Riddelsdell and named *V. obtusifolia* Jord. by Drabble."—A. H. G. ALSTON. [The large-flowered plants mentioned by Mr Alston have been withdrawn from the Distribution.—ED.]

Silene italica Pers. Origin: 16, W. Kent; Greenhithe. Cultivated at Birmingham, May 1945. Plants grown from seed in my garden, showing distinctly the characteristic inflorescence.—R. C. L. BURGES. " Correctly named."—W. B. TURRILL.

Sagina apetala Ard. 62, North-east Yorks.; garden path, Catton, July 1st, 1945.—Miss C. M. ROB. " Correct."—F. R. ELLISTON WRIGHT. " Correctly named."—W. B. TURRILL.

Tilia platyphyllos Scop. (Ref. No. 964.) 35, Monm.; on calcareous soil, edge of Lady Park Wood, roadside, between Symond's Yat and Hadnock Quarries, near Monmouth, Sept. 6th, 1944.—R. LEWIS. "Yes. The hairy shoots and leaves and fruits with five prominent ribs are characteristic of this species which is believed to be indigenous in the Wye Valley. See *Fl. Herefordshire*."—A. B. JACKSON.

Geranium molle L. var. *aequale* Bab. 34, W. Glos.; in clover field north-east of Tarlton, Coates, near Cirencester, June 1st, 1945. An interesting form which would repay genetical investigation.—H. K. AIRY-SHAW and E. NELMES. " Correct."—E. F. WARBURG. " There are two plants on the sheet I have: one is correctly named var. *aequale*, the other has wrinkled capsules characteristic of the typical plant. Most books describe the carpels as glabrous, but these specimens show a few minute hairs at the base."—A. E. WADE. " This is not found in Babington's *Manual*; I wonder why?"—W. C. R. WATSON. It was added with a query in ed. 2 of the *Manual* and cut out in ed. 3.—A. J. WILMOTT.

Geranium Robertianum L. (white-flowered form). 38, Warwicks.; roadside bank, Wootton Wawen, May 27th, 1945.—R. C. L. BURGES. " Correct."—E. F. WARBURG.

Erodium pimpinellifolium Cav. [" *E. cicutarium* L'Herit."] (Ref. No. 5327.) 62, North-east Yorks.; sandy cultivated land, Youlton Moor near Aldwark, Sept. 17th, 1944. Petals reddish-violet, longer than calyx, two upper spotted. I should think this plant is either *E. commixtum* Jord. or *E. praetermissum* Boreau, but I did not note colour of stigmas.—E. C. WALLACE. " *E. pimpinellifolium* Cav.; I do not regard *E. commixtum* Jord. and *E. praetermissum* Boreau as separable." —E. F. WARBURG.

Oxalis stricta L. 35, Monm.; garden weed, Mayhill, Monmouth, Aug. 2nd, 1945.—Coll. Mrs E. LEWIS; comm. R. LEWIS. " Mr A. J. Wilmott remarked on specimens of this sent to him in 1942, ' The *Oxalis* is what is distributed as *O. stricta*, but I find that *O. stricta* is said to have capsules glabrescent, which does not seem to be true '."—R. LEWIS.

Trifolium medium (L.) Huds. (Ref. No. 4885.) 7, N. Wilts.; roadside near Hullavington, July 4th, 1945.—J. D. GROSE. " Yes."—J. S. L. GILMOUR.

Trifolium arvense L. 10, Isle of Wight; waste land, Newport, 1944. —J. W. LONG. " Yes."—J. S. L. GILMOUR.

Trifolium subterraneum L. 10, Isle of Wight; St Helens, 1944.—J. W. LONG. " Yes."—J. S. L. GILMOUR.

Lotus angustissimus L. 1, W. Cornwall; 1930.—J. W. LONG. " Yes." —J. S. L. GILMOUR.

Vicia villosa Roth. subsp. *dasycarpa* (Tenore) Cavillier. 17, Surrey; disused rickyard in corner of field near Holmwood, July 1st and 28th, 1945. This vetch was growing in quantity mixed with occasional plants of densely hairy *V. villosa* subsp. *eu-villosa* Cavillier and intermediates. If the behaviour in this adventive station is evidence on which to base an opinion the two plants should be separated on a lower grade than the subspecific rank given in Hegi (*Ill. Fl. Mitt.-Eur.*, *4* (*3*), 1534 seq., 1924) and the plant distributed may be better cited as *V. villosa* Roth. var. *glabrescens* Koch. It is *V. varia* Host. *s. str.* but certainly does not justify separation from *V. villosa* as a species.—J. E. Lousley. "Yes. Pending a competent revision I prefer to keep this as *V. dasycarpa* Tenore."—B. L. Burtt.

Vicia narbonensis L. 39, Staffs.; appearing every year in an allotment near Worthington's maltings, Burton-on-Trent, Sept. 1945.—R. C. L. Burges. "Correct."—B. L. Burtt.

Lathyrus tuberosus L. ["*Lathyrus* sp."] (Ref. No. 4959.) 7, N. Wilts.; wood border, West Woods, Marlborough, Aug. 15th, 1945. This differs from all the sheets of *L. tuberosus* I have, in the much narrower leaflets and the rather larger flowers.—J. D. Grose. "This is *L. tuberosus* L."—B. L. Burtt, A. B. Jackson and A. J. Wilmott.

×*Prunus fruticans* Weihe. ["*P. insititia* L. ?"] 1, W. Cornwall; in hedge, Lambriggan, Perranzabuloe, Aug. and Sept. 1945. A small-fruited form; one of many which pass under the name. As with the sloe, the various forms of *P. insititia* spread readily by suckers from the roots, and so form thickets in waste ground or long rows in hedges. Suckers from these bushes were noticed several feet from the hedge.—F. Rilstone. "This seems best placed in ×*P. fruticans* Weihe (*P. spinosa* × *insititia*) on account of the spiny branches, suckers and relatively small fruit with glabrous peduncle."—R. Melville. "I think this plant is probably the same as Davey records as *P. spinosa* var. *macrocarpa* (*fruticans*) in the *Flora of Cornwall*. An interesting sequence is to be observed in records of the plant. First, Briggs in his *Flora of Plymouth* calls the common plant about Plymouth (in Devon and Cornwall) *P. fruticans*. Later, in the *Journ. Bot.*, he records the same thing for Egloshayle and other localities in the Camel basin. Davey, when preparing the *Flora of Cornwall*, visited that area, evidently found Briggs' plant, recorded it also from Wadebridge and also identified one of his West Cornwall forms, which in his *Tentative List* a few years earlier he had put to *insititia*, as var. *macrocarpa*."—F. Rilstone.

Rubus fuscus Weihe. (Ref. No. 1) 17, Surrey; *ex* heath, The Chart, near Limpsfield, National Grid ref. 428516; July 1945. The specimens distributed are garden grown from a plant derived from the bush at the Chart. Petals broad ovate, white with the claw greenish. Stamens white, slightly longer than the reddish-based styles. Young carpels glabrous. This is, I believe, the first correct record for *Rubus fuscus* Weihe in this country, the plant usually so called by British botanists, on Focke's authority, e.g. at Leigh Woods, near Bristol, N. Som., being *Rubus fusciformis* Sud. The author of the species is Weihe, not Weihe and Nees as given in Rogers' *Handbook*, the *London Catalogue*, ed. 11, and Druce's *Plant List*.—W. C. R. WATSON.

Rubus praetextus Sudre. (Ref. No. 2) 16, W. Kent; *ex* Hosey Common, near Westerham, National Grid ref. 453534; July 5th, 1945. The specimens distributed are garden grown from a plant derived from a bush on Hosey Common. Sepals green, white-bordered, patent in flower, afterwards clasping. Petals rhomboid-elliptical notched, white. Stamens white, shorter than the reddish-based styles. Frequent on the Lower Greensand range south of Westerham, and in v.-c. 15, E. Kent, in King's Wood, Sutton Valence. This is the first record for Great Britain.—W. C. R. WATSON.

Rubus obscurus Kalt. (Ref. No. 3) 16, W. Kent; *ex* Tunbridge Wells Common, National Grid ref. 580391; July 5th and 29th, 1944, and Aug. 11th, 1945. The specimens distributed are garden grown from a plant derived from Tunbridge Wells Common. Petals pink. Stamens white. Styles whitish, or reddish or red. Young carpels pilose. Upper stem leaves and all branch leaves greyish-white felted beneath. This is the true *R. obscurus* Kalt.: the *obscurus* of Rogers' *Handbook*, p. 74 (Set of Brit. Rubi No. 125, Belmont Wood, Hereford) is not *obscurus* despite its having been so identified by Focke and accepted as correct by Sudre. The latter is a much hairier and smaller plant, with small roundish cuspidate leaflets, the chief prickles very strongly declining or somewhat hooked, the leaves finely and evenly crenate-mucronate, the panicle long with many simple leaves, the stamens and styles subequal, the sepals clasping, and the fruit very acid. The true *obscurus*, on the contrary, is a robust plant with large elliptical or obovate leaflets, somewhat coarsely and unequally sharply serrate, the chief prickles long broad and thick, the panicle short, broad, and leafy only below, the sepals patent or hardly clasping, the stamens long, and the fruit very large and sweet.—W. C. R. WATSON.

Rubus hirtus Waldst. & Kit. (Ref. No. 4) 16, W. Kent; *ex* Tunbridge Wells Common, National Grid ref. 580391; July 5th, 1944, and Aug. 11th, 1945. The specimens distributed are garden grown from a plant derived from Tunbridge Wells Common. Petals white. Stamens white, slightly longer than the whitish styles. *R. hirtus* also occurs along the west border of Telegraph Wood, Claygate, National Grid ref. 157648, v.-c. 17, Surrey; and in several woods in v.-c. 19, N. Essex, between Saffron Walden and Bishops Stortford. There seems to have been much uncertainty as to its occurrence in this country.—W. C. R. WATSON.

Potentilla intermedia L. Origin not known. Cultivated at Newport, Isle of Wight, 1945.—J. W. LONG. "I think this is correct; the specimen probably belongs to the var. *Heidenreichii* Focke, which is commoner in Europe than the type and is more hairy, the underside of the leaves in particular being thickly hairy and grey-green in colour."—D. H. VALENTINE.

Agrimonia odorata (Gouan) Mill. (Ref. No. 4897.) 7, N. Wilts.; Burderop Wood, July 10th, 1945. This plant agrees with the characters attributed to *A. odorata*, but it is not an extreme form. I have specimens in which the recurved spines of the calyx are so long that they completely cover the calyx, making the fruit orbicular in outline. In the present plant, the fruit usually has two nuts, but in a few cases only a single nut is produced. In these cases the furrows become more prominent and the base of the calyx becomes less campanulate. It is generally possible to recognize such fruits by their shape without dissection.—J. D. GROSE. "Mr Grose's observations on the development of the nuts in *Agrimonia* are borne out by M. Crépin (*Notes sur Pl. Rares ou Critiques Belg.*, in *Bull. Acad. Roy. Sci. Belg.*; 2nd Ser., 7, 101, 1859). 'Le fruit, chez l'*A. odorata*, offre presque toujours deux akènes à la maturité, et si, par hasard un des ovaires vient à avorter, les sillons du calice se montrent plus marqués, sans dependant arriver à la longueur de ceux de l'*A. Eupatoria*. Dans ce dernier cas, la forme du tube calicinal, celle du bourrelet couronnant le fruit à la maturité, ainsi que la direction des épines ne sont point altérées'."—A. B. JACKSON. "I have little doubt that this is correctly identified."—D. H. VALENTINE.

Agrimonia odorata (Gouan) Mill. (Ref. No. 4919.) 7, N. Wilts.; wood near Puthall Gate, Savernake Forest, July 15th, 1945. This form appears to be intermediate between *A. odorata* and *A. Eupatoria*. It differs from the Burderop Wood plant (Ref. No. 4897) in its lesser stature, smaller leaves and less-branched habit. Further, the calyx is obconic with long, prominent furrows and with shorter reflexed spines. These last characters must, I feel, be related to the fact that the fruit is almost always with a single nut, and only occasionally are two nuts formed. The leaves, however, have not the very dense pubescence of *A. Eupatoria*, and are copiously sprinkled with sub-foliar glands, many of them stalked. In all the specimens of *A. Eupatoria* I have examined there are at least some glands, but they are sessile. I think it likely that it will be found that the most constant distinguishing character between the two species lies in the pubescence and glandular development of the leaves.—J. D. GROSE. "This plant needs to be collected in a later stage, when I think it will turn out to be fairly typical *A. odorata*. The shape of the fruiting calyx-tube differs very little from that of the Burderop Wood plant, although the ribbing is slightly more prominent. The size of the plant has no diagnostic value, although *A. odorata* is often stated to be taller and more robust. Useful characters for distinguishing the two species are furnished by the character of the pubescence and glandular development. See *Journ. Bot.*, *53*, 280, 337, 338 (1915) for notes on the two species."—A. B. JACKSON. "This I think is also correct. I am interested in the remarks on pubescence and glandular development. These are both characters that one would expect to be much affected by variation in environmental factors. It would be valuable and instructive to grow *A. Eupatoria* and *A. odorata* side by side, both in well-illuminated and in shady conditions, and also on different types of soil, in order to determine the constancy of the characters. Hairiness is a character which is notoriously variable, and I should hesitate to give it preference over fruit characters."—D. H. VALENTINE. In my experience the amount of an indumentum varies while the type of indumentum is, as in these species, characteristic.—A. J. WILMOTT.

Rosa canina L. var. *senticosa* (Ach.) Baker forma *oxyphylla* (Rip.) W.-Dod (det. R. Melville). (Ref. No. 821.) 35, Monm.; edge of large clearing, Garth Wood, near Monmouth, May 30th and Sept. 4th, 1945. —R. LEWIS.

Rosa canina L. var. *globularis* (Franch.) Dum. (det. R. Melville). (Ref. No. 804.) 35, Monm.; edge of Garth Wood, roadside, Staunton Road, Monmouth, May 21st and Sept. 4th, 1945.—R. LEWIS. "Correctly named."—W. C. R. WATSON.

Rosa dumetorum Thuill. var. *incerta* (Déségl.) W.-Dod (det. R. Melville). (Ref. No. 1100.) 35, Monm.; roadside, Kymin, Monmouth, May 30th and Aug. 30th, 1945. Flowers white and faintly scented; see remarks under Ref. 1103 below.—R. LEWIS. "Correctly named. I have not seen this before."—W. C. R. WATSON.

Rosa dumetorum Thuill. var. *incerta* (Déségl.) W.-Dod (det. R. Melville). (Ref. No. 1103.) 35, Monm.; in hedgerow, "Warfields," Staunton Road, Monmouth, June 2nd and Sept. 4th, 1945. Flowers pink.—R. LEWIS. "Ref. No. 1100 and Ref. No. 1103 are both *Rosa dumetorum* Thuill. var. *incerta* (Déségl.) W.-Dod. There is some variation in the amount of hispidity of the styles in both collections, individual hips having ± glabrous styles. Wolley-Dod in *Roses of Britain* suggests that this variety is very close to *R. stylosa*. I think it likely that the Roses of this group are hybrids between *R. dumetorum* and *R. stylosa*, but a good deal of field work will be necessary to substantiate this view. On this ground one would expect a range of intergrading forms between the species, and the comparatively small differences in colour and leaf size between the two collections would fit in."—R. MELVILLE.

Rosa Sherardi Davies var. *omissa* (Déségl.) W.-Dod (det. R. Melville). (Ref. No. 810.) 35, Monm.; in hedge, roadside, Staunton Road near Staunton, June 4th and Sept. 4th, 1945.—R. LEWIS. "Correctly named."—W. C. R. WATSON.

Myriophyllum heterophyllum Michx. (Ref. No. 40.) 63, South-west Yorks.; canal, Halifax, Sept. 16th, 1944.—Coll. H. Walsh; comm. W. A. Sledge. "A North American species not previously recorded for Britain. It grows near the well known *Potamogeton epihydrus* var. *ramosus* but is a much more recent introduction which was first observed sterile in 1941 and again in the two succeeding years but not until 1944 were flowers produced. For further particulars see *The Naturalist*, 1944, pp. 143-144."—W. A. Sledge. "This species has normally four stamens, while the two native species have eight. In habit the specimens match one collected in Alabama by Lesquereux. Fruiting specimens should be collected."—A. H. G. Alston.

Callitriche truncata Guss. var. *occidentalis* (Rouy). (Ref. No. 42.) 56, Notts.; fruiting plants, Chesterfield Canal, Drakeholes, Aug. 2nd, 1945.—W. A. Sledge. "This material matches British specimens so-named in the B.M. Herbarium and agrees with Pearsall's description in the 1934 *Report*, p. 870."—A. H. G. Alston.

Epilobium obscurum Schreb. (with stolons). 1, W. Cornwall; old garden ground, Lambourne Hill, Perranzabuloe, Sept., 1945. I send these sheets because though I have three or four British specimens distributed at one time or another through the Club none of them shows stolons.—F. Rilstone. "These are all admirable specimens of *E. obscurum* showing the characteristic stolons. It would be a mistake however to assume that an *Epilobium* gathered in September without stolons could not be *Epilobium obscurum*. Dry ground, inclement weather, or late development of seedling plants may produce many plants of this species without any signs of stolons at all. Complete plants, such as these are, are always welcome when sending *Epilobium* for distribution." —G. M. Ash.

Epilobium adenocaulon Hausskn. × *obscurum* Schreb. 17, Surrey; Witley, July 23rd, 1941. These hybrids are generally plentiful where the parents occur. The pubescence of the upper parts is as in *E. obscurum*, with a small admixture of patent glandular hairs. The leaves resemble a narrow-leaved form of *E. adenocaulon*. As with most *Epilobium* hybrids these plants show the flushed tips to the petals.—G. M Ash.

Epilobium roseum Schreb. (Ref. No. 4898.) 7, N. Wilts.; Hodson Wood, July 10th, 1945.—J. D. Grose. "All these sheets are correctly named. The rose-coloured flowers with the long petioled, tapering base to the leaves is very definite for this species."—G. M. Ash.

Epilobium montanum L. ["*E. montanum* × ——"] (Ref. No. 4899.) 7, N. Wilts.; Hodson Wood, July 10th, 1945.—J. D. Grose. "In my opinion all these plants are *E. montanum* L."—G. M. Ash.

Oenanthe pimpinelloides L. 16, West Kent; golf-course near Bickley, July and Aug. 1944.—J. E. LOUSLEY and R. W. HALE. "As recorded in the *London Naturalist*, 1945, the credit for this N.C.R. is due to R. W. Hale who showed me the plant *in situ* and sent material at intervals until late autumn in order that the development of the fruits and tubercles might be followed. It occurs in considerable quantity spread over a disused golf-course, and also, I understand, elsewhere in the neighbourhood on a railway bank. As usual with this species the habitat is a dry one and although the geology is London Clay the soil is less heavy than is usually the case over that rock."—J. E. LOUSLEY. "*Oenanthe pimpinelloides* L."—C. NORMAN.

Oenanthe fistulosa L. (non-flowering stems). 7, N. Wilts; Inglesham, Nov. 24th, 1945.—Coll. N. PESKETT; comm. J. D. GROSE. "*Oenanthe fistulosa* L."—C. NORMAN.

Valerianella dentata Poll. (Ref. No. 4984.) 7, N. Wilts.; cultivated field, Norton, Sept. 19th, 1945.—J. D. GROSE. "Correct."—B. L. BURTT and A. J. WILMOTT.

Bidens tripartita L. (Ref. No. 1165.) 35, Monm.; brookside in roadside meadow, between Mitchel Troy and Dingestow, near Monmouth, August 27th, 1945.—R. LEWIS. "Yes."—W. R. PHILIPSON.

Galinsoga quadriradiata Ruiz & Pav. var. *hispida* (DC.) Thell. 17, Surrey; abundant in cultivated fields near Claygate, Sept. 2nd, 1944. See Report for 1943-44. These plants are much finer than those I have seen growing under less favourable conditions in the City and West End of London, and at Christchurch, S. Hants. In addition to the well known characters it will be seen that the leaf-shape of these fully developed plants is different from that of *G. parviflora* and that the branches are more spreading with a tendency for the stem to terminate in an abortive flower-head at the point of branching.—J. E. LOUSLEY. "Yes."—W. R. PHILIPSON. "Correct—see *B.E.C. 1938 Rep.*, 93 (1939)."—A. E. WADE.

Hemizonia pungens Torrey & Gray. 39, Staffs.; one large straggling plant at Worthington's maltings, Burton-on-Trent, Sept. 1945. I have not seen this alien for several years at Burton but between 1933 and 1936 it appeared fairly frequently.—R. C. L. BURGES. "Yes."—W. R. PHILIPSON.

Artemisia Verlotorum Lamotte in *Mém. Assoc. française, Congr. de Clermont-Ferrand*, 1876, 511, and *Prod. Fl. du Plateau central de la France, 2*, 400-402, 1876-1880. 17, Surrey; by the towing path between Mortlake and Kew, Nov. 3rd, 1945. Mr Iolo A. Williams was the first to detect this plant in Britain at the locality from which it is now distributed. There are two large colonies, one of which extends for some distance up a lane leading away from the river, and I understand that Mr N. Y. Sandwith has seen it at Ham and Ripley in Surrey and Mrs B. Welch at Brentford and Chiswick in Middlesex. In the field the plant is easily distinguished from *A. vulgaris* L. by the tall stems 1 to 1½ metres in height, unbranched below and devoid of leaves in their lower half; by the brighter green leaves with lanceolate acute lobes with a strong aromatic scent when crushed recalling that of Tansy; by the small sessile axillary capitula with reddish glabrous corollas devoid of glands, and by the remarkable lateness of the flowering. With a view to selecting specimens at their best the colony was visited frequently for about two months but although there was an absence of severe frost no better developed heads were found after the date of collection. The species was named by Lamotte for the brothers J.-B. and B. Verlot and he was well aware that its claims to be a native of France were doubtful. Hegi (*Ill. Fl. Mitt.-Eur.*, *6* (*1*), 631-2, 1929) gives an excellent account and illustrations of *A. Verlotorum* with useful references and synonomy. It seems that it is a native of Western China naturalised in North America, Algeria, southern and middle France, northern Italy and Germany. I have not yet seen the very characteristic winter rosettes illustrated by Hegi (fig. 343) but to-day (Dec. 1st) fresh shoots are appearing from the lower stem which seem likely to develop into them.—J. E. LOUSLEY. " Yes."—W. R. PHILIPSON. " I do not know the plant. The specimens I have seen have only a few buds. The foliage suggests the plant referred to by Rouy, *Fl. de France*, *8*, 291, but mature flowers are necessary for certain determination. Rouy adopts the name *A. Selengensis* Turez."—A. E. WADE.

×*Senecio londinensis* Lousley. (*S. squalidus* L. × *viscosus* L.) (det. J. E. Lousley). 38, Warwicks.; Birmingham, Sept. 1945. This hybrid appeared on the rubble of a house in Birmingham completely destroyed during the air bombardment of 1940. It appears to be a good intermediate between its parents; the ray-florets are a little larger than in *S. viscosus*, it is not nearly so viscid, the leaves approach those of *S. squalidus* and the achenes are abortive.—R. C. L. BURGES. " Yes."—W. R. PHILIPSON.

×*Senecio londinensis* Lousley. (*S. squalidus* L. × *viscosus* L.) (Ref. No. 3034.) 17, Surrey; waste ground, Ham Pits, July 31st, 1944. (Ref. Nos. 3030, 3031, 3032.) 21, Middlesex; bombed site, Serjeants' Inn, Fleet Street, E.C., Aug. 11th, 1943; Sept. 14th, 1943, and June 22nd, 1944. (Ref. No. 3033.) 21, Middlesex; bombed site, Devereux Court, Temple, W.C.1, Aug. 8th, 1944. The specimens from Serjeants' Inn, Aug. 11th, 1943, were, I believe, the first to be collected of this newly-described hybrid. The five gatherings show a range of variation at different dates from June to September."—N. Y. SANDWITH.

Arctostaphyllos Uva-ursi (L.) Spreng. 65, North-west Yorks.; Cronkley Scars, Teesdale, May 28th, 1939, and Aug. 9th, 1942.—W. A. SLEDGE. " Correct."—H. K. AIRY-SHAW.

Anagallis arvensis L. subsp. *phoenicea* (Scop.) Schinz & Keller var. *coerulea* Lüdi. (Ref. No. 1113.) 35, Monm.; in barley field, "Warfields," Staunton Road, Monmouth, July 9th, 1945.—R. LEWIS. "Yes, correctly named. A most interesting gathering. Data as to the proportion of type to blue, also if the field had been recently ploughed, would have been of interest."—E. M. MARSDEN-JONES. "The proportion of blue to type was very small. The plants occurred in small scattered patches amongst a more or less continuous patch of the red type which extended practically over the whole field. This blue var. although usually found in small patches, is fairly widespread in the district around Monmouth. The field had been under cultivation since 1940 and had again been ploughed earlier in 1945. I think that the intensive ploughing of grassland may be an important factor in the spread of this plant."—R. LEWIS. *A. arvensis* var. *azurea* Wilmott, see *1943-44 Rep.*, 664.—A. J. WILMOTT. [Beautifully prepared specimens.—ED.]

Ligustrum vulgare L. var. *aurifiorum* Hoefk. (det. R. Melville). (Ref. No. 4884.) 7, N. Wilts.; on the Inferior Oolite between Alderton and Luckington, July 4th and Sept. 19th, 1945. A single bush, associated with many of the normal form, and to all appearances, quite native. The fruit is black.—J. D. GROSE. "Yes."—J. S. L. GILMOUR.

Pulmonaria officinalis L. var. *immaculata* Opiz. (Ref. F.23.) 25, E. Suffolk; Burgate Wood, Botesdale, May 5th, 1934.—Coll. J. E. LOUSLEY; comm. E. C. WALLACE. "Correct."—A. E. WADE.

Veronica filiformis Smith (det. A. J. Wilmott). 1, W. Cornwall; waste ground by Perranzabuloe Church, May 2nd, 1945.—F. RILSTONE. "Rapidly becoming established in many places as a garden escape, but only, I believe, by vegetative means, as I have not seen seeds produced in this country."—A. E. WADE.

Euphrasia brevipila B. & G. (Ref. No. 4689.) 39, Staffs.; hayfield between Winkhill and Bottom House, Ipstones, July 27th, 1945.—E. S. EDEES. "This set has been gathered late; the plants are just past flowering. The majority of the specimens have scarcely glandular foliage and might be referred to f. *subeglandulosa* Bucknall. Some of them even recall *E. borealis* Towns."—H. W. PUGSLEY.

Euphrasia brevipila B. & G. var. *notata* Pugsl. (Ref. No. 4691.) 88, Mid Perth; pasture near the Ben Lawers Hotel, Aug. 15th, 1945.—E. S. EDEES. "A homogeneous set of this well-marked plant from its *locus classicus*."—H. W. PUGSLEY.

Euphrasia brevipila B. & G. × *nemorosa* Löhr. ? (det. H. W. Pugsley). (Ref. No. 4689 B.) 39, Staffs.; hayfield between Winkhill and Bottom House, Ipstones, July 27th, 1945.—E. S. EDEES. "The short lower internodes and the relatively narrow leaves suggest this possibility.—H. W. PUGSLEY.

Euphrasia nemorosa Löhr. (Ref. No. 4687.) 39, Staffs.; waste ground about coal pit mounds between Silverdale and Scot Hay, Newcastle, Aug. 31st, 1945.—E. S. Edees. "Yes. *E. nemorosa* Löhr. (type) with fruits narrower and less retuse than usual."—H. W. Pugsley.

Euphrasia nemorosa Löhr. var. *collina* Pugsl. ["*Euphrasia nemorosa* Löhr."] (Ref. No. 4688.) 39, Staffs.; waste limestone ground at Ecton quarry in the Manifold Valley, Wetton, Aug. 25th, 1945.—E. S. Edees. "This is var. *collina* Pugsl., mostly a rather slender form."—H. W. Pugsley.

Euphrasia anglica Pugsl. (Ref. No. 4690.) 39, Staffs.; damp limestone pasture near Dale Abbey Farm, Stanton, July 27th, 1945.—E. S. Edees. "A homogeneous set, correctly named."—H. W. Pugsley.

Orobanche elatior Sutton. (Ref. No. 4878.) 8, S. Wilts.; chalk down near Enford, June 27th, 1945.—J. D. Grose. "Correctly named. The host-plant is not stated but is presumably *Centaurea Scabiosa* L."—H. W. Pugsley. "Yes. The species is common in many parts of Wiltshire, particularly on the chalk, but I have never seen it on any other host."—J. D. Grose.

Teucrium Scordium L. Origin: 4, N. Devon; Braunton. Cultivated at Newport, Isle of Wight, 1936.—J. W. Long. "The coarser leaves and extensive development of long hairs on the Braunton plant give it a very different appearance from the Water Germander of Berkshire and East Anglia, and Babington and other botanists of a century ago were inclined to give it a separate name. David Moore in a careful note (*Phytologist*, *2*, 129, 1845) showed that the almost glabrous and very hairy forms were merely deep water and dry ground states of the same plant, but G. C. Druce described the Braunton plant as var. *dunense*. One would expect the hairy form to retain its characters in a garden as in the case of Mr Long's specimens, but it would be interesting to grow a few roots of the same clone under very wet conditions."—J. E. Lousley.

Herniaria hirsuta L. 39, Staffs.; Burton, Sept. 1945. Abundant every year at Bass' Brewery, growing between the railway lines and on the asphalt behind the coopering sheds.—R. C. L. Burges. "Correctly named."—W. B. Turrill.

Chenopodium rubrum L. forma. 7, N. Wilts.; garden ground, Lydiard Millicent Rectory, July 1945.—Coll. Mrs Shepherd; comm. J. D. Grose. "Mrs Shepherd has kindly given me the following information on these plants. A form of *C. rubrum* was first noticed in the garden on a sheltered south border in 1939. The plants were very small, seldom with a diameter of more than 8 cm. and often much less. The branches were prostrate, ascending only at the tips. Most of the plants flowered and fruited in the early summer, but a few appeared later in the season. The form seemed to be referable to var. *pseudo-botryoides* Wats. in every way. During the period 1939 to 1944 little change was observed in the colony, and again in June 1945 only the one form was present. At this period, there was no gardener, and much of the garden was left unweeded. During the following month (July 1945) there occurred a remarkable development in the rate of growth, and many of the plants assumed enormous proportions. The largest seen was about 70 cm. in diameter, with the ascending branches reaching to about 30 cm. The habit of many of these large plants was unchanged, but some (probably because of crowding) became sub-erect with many branches all reaching to about the same height. In a potato-patch only the small form grew; in an onion-bed which had been made firm by rolling, small and large forms grew together; and on ground which had been rough-dug during the winter and not sown, all the plants were large. It may be noted that the normal erect form of *C. rubrum* occurs sparingly in the same area, and it is of particular interest that the times of flowering and fruiting of this are several weeks later than of the procumbent forms. Dr Bromfield (*Phytol.*, *3*, 751) found that seeds of var. *pseudo-botryoides* when sown in garden soil produced an erect form of *C. rubrum*, but this gathering seems to indicate that this may not always be the case."—J. D. GROSE. "It seems likely, as Mr Grose suggests, that the prostrate or subprostrate, more or less microphyllous forms of *Chenopodium rubrum* L. that have been called var. *pseudo-botryoides* H. C. Wats. ex Syme are heterogeneous, including both plants where these characters are genuinely genetic and plants that are merely environmental states. The notes on the present most interesting gathering suggest that its characters are genetically constant; but until further cultural experiments have been performed it is scarcely possible to devise a satisfactory classification of the variants of *C. rubrum*. I have never seen anything quite agreeing with Mr Grose's plants, especially in their size, and can at present only suggest, with some doubt, that they be left under var. *pseudo-botryoides* in its wide sense. I hope that it will be possible to get an opinion from Dr Aellen, who may have encountered this striking form on the continent."—J. P. M. BRENAN.

Chenopodium album L. × *Berlandieri* Moq. subsp. *Zschackei* (Murr) Zobel var. *typicum* (Ludwig) Aellen. ["*Chenopodium* sp. (cf. *C. album* L. × *Berlandieri* Moq. subsp. *Zschackei* (Murr) Zobel)."] 17, Surrey; all specimens from a single plant 259.5 cms. tall, adventive in my garden, Streatham, Sept. 26th, 1945. One plant of this remarkable Chenopod appeared in my garden in 1944 in a flower-bed sown with seeds from a St Albans firm, but few ripe seeds were formed and Mr Brenan was unable to identify specimens. In 1945 two very large and apparently identical plants appeared on the same spot. The one from which the material now distributed was taken would have provided at least fifty gatherings if they had been required. The stem was c. 1.75 cm. in diameter in the lower half swelling to 3 cm. at ground level, reddish with about ten longitudinal green or brownish stripes. Most of the branches were over a metre in length. Portions of the upper stem have been included on all sheets but the lower stem proved too thick and brittle to cut.—J. E. Lousley. " The ripe seeds of this excellent gathering enable it to be referred confidently to the hybrid *Chenopodium album* L. × *Berlandieri* Moq. subsp. *Zschackei* (Murr) Zobel var. *typicum* (Ludwig) Aellen (×*C. variabile* Aellen var. *Murrii* Aellen). The usually sparse white mealiness, the tendency in the leaves to be obtuse and mucronate at the apex and to produce a prominent marginal lobe on each side, and the rather large glomerules (not very marked in this gathering) generally enable this plant to be readily separated from *C. album* in the field. It is normally green except for remarkably vivid splashes of amaranth-purple in the axils of the larger branches; it would be interesting to know if these occurred in Mr Lousley's plants, whose colour when dry suggests that they may have done. To separate the hybrid from *C. Berlandieri* requires examination of the seeds under the compound microscope. This gathering shows the comparatively shallow and irregular pitting of the testa, more or less broken up by radial furrows, characteristic of the hybrid, which for some unexplained reason, seems to be considerably more frequent in this country than *C. Berlandieri* and its numerous variants." —J. P. M. Brenan.

Chenopodium carinatum R. Br.* 17, Surrey; sandy track, Frensham Pond, July 1945. These plants were noticed by Miss Hope Murray of Hindhead during an expedition of the Haslemere Natural History Society in June 1945. I am grateful to Mr A. J. Wilmott and to Mr N. Y. Sandwith for their identification. The plants were growing abundantly about ten yards east of the main road past Frensham Pond in a sandy track churned up by military vehicles. Small plants appeared erect or semi-erect; larger plants lay as flat as a pancake. Mr Wilmott tells me that the plant is a native of Australia.—G. M. Ash. " Correct, I believe."—A. E. Wade.

Chenopodium foliosum (Moench) Aschers. [" *Chenopodium capitatum* (L.) Asch."] 41, Glam.; in a bird cage, University College, Cathays Park, Cardiff, July 15th, 1941.—Coll. Miss Pears; comm. Dept. of Botany, National Museum of Wales. " This is *Chenopodium foliosum* (Moench) Aschers. (*C. virgatum* (L.) Ambrosi, non Thunb.). *C. capitatum* is a different-looking plant with fewer and usually larger glomerules, the upper ones not subtended by leaves, and with the seeds sharply keeled on the margin and not furrowed as in *C. foliosum*.—J. P. M. Brenan. " *Chenopodium foliosum* (Moench) Aschers. This

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*This gathering is *C. pumilio* R. Br. (*C. carinatum* auct., non R. Br.), see Plant Notes in 1946 Report.

species has been recorded from near Llandudno by J. Cosmo Melvill in *Journ. Bot.*, *37*, 85 (1899) as *C. capitatum*: an erroneous identification as his specimen at the Brit. Mus. shows. There is a cultivated specimen from the Chelsea Physic Garden, dated 1739, in the Brit. Mus. Herbarium. The species was formerly cultivated for ornament."—A. H. G. ALSTON.

Axyris Amaranthoides L. (Ref. No. 4983.) 7, N. Wilts.; in lucerne, Norton, Sept. 19th, 1945.—J. D. GROSE. "Yes."—A. J. WILMOTT. "Yes, a native of N. Asia which is now reaching this country with increasing frequency by way of the New World."—J. E. LOUSLEY.

Polygonum lapathifolium L. var. *tomentosum* (Schrank) Beck. ["*P. lapathifolium* L. var. *incanum* (Schmidt) Koch."] (Ref. No. 1114.) 35, Monm.; in barley field, "Warfields," Staunton Road, Monmouth, July 9th, 1945.—R. LEWIS. "This seems to be *P. lapathifolium* L. var. *tomentosum* (Schrank) Beck in the sense in which the name is used by C. E. Britton (*Journ. Bot.*, *71*, 93, 1933). It agrees well with the plate in Reichenbach, *Ic. Fl. Germ.*, t. 267, f. 1-3. It seems to be a form of wet places and it is noteworthy that the lower leaves of the supposed typical form are sometimes arachnoid. Mr Lewis' specimens have seeds nearly half as large again as those of *P. nodosum*, white flowers and large yellow glands on the peduncles, which are characteristic of *P. lapathifolium* L."—A. H. G. ALSTON and A. B. JACKSON.

Polygonum nodosum Pers. (Ref. No. 948.) 35, Monm.; banks of River Wye, Hadnock, near Monmouth, Aug. 20th, 1944.—R. LEWIS. "This is more like Reichenbach's figures than Mr Grose's plant, which has narrower leaves."—A. H. G. ALSTON and A. B. JACKSON.

Polygonum nodosum Pers. var. *incrassatum* Rouy forma *stenophylla* C. E. Britton. ["*P. nodosum* Pers."] (Ref. No. 4969.) 7, N. Wilts.; pond, Coate, Swindon, Aug. 30th, 1945.—J. D. GROSE. "The name *P. nodosum* has been applied to a variety of *P. Persicaria* by Dyer & Trimen in *Journ. Bot.*, *9*, 37 (1871), but as Persoon mentions 'vaginis nudis,' i.e. sheaths not fringed, and leaves 'ovato-lanceolatis' it seems that Moss (*Camb. Brit. Flora*, *2*, 117, 1914) and C. E. Britton (*Journ. Bot.*, *71*, 94, 1933) were right to apply the name to the plant figured in Reichenbach's *Icones*, fig. 689, and *Icon. Fl. Germ.*, t. 218. Mr Grose's plant resembles Reichenbach's figures but appears to be a narrow-leaved form or variety. The following characters are shown, the entire (not fringed) stipules, spotted 'flea-bitten' stem, and a few glands on the peduncles. *P. Persicaria* differs by its glabrous peduncles, fringed stipules, and green stem, which may be somewhat nodose. *P. lapathifolium* has larger seeds and usually white flowers. This narrow-leaved form agrees with Britton's forma *stenophyllum* of var. *incrassatum* Rouy."—A. H. G. ALSTON and A. B. JACKSON.

Polygonum mite Schrank. (Ref. No. 946.) 35, Monm.; banks of River Wye, Hadnock, near Monmouth, Aug. 20th, 1944.—R. LEWIS. "*P. Hydropiper* L. is separated by its glandular perianth and *P. minus* Huds. has a smaller fruit. Mr Lewis' specimen has the large fruits of *P. mite*. Moss adopts the name *P. laxiflorum* Weihe."—A. H. G. ALSTON and A. B. JACKSON.

Polygonum minus Huds. 65, North-west Yorks.; margin of dried-up pond, Berryhills, Kirklington, Aug. 26th and Sept. 10th, 1944.—E. C. WALLACE. "Correctly named. The smaller fruits seem to be the best character to separate this from *P. mite* Schrank."—A. H. G. ALSTON and A. B. JACKSON.

Polygonum Raii Bab. 2, E. Cornwall; Par Sands, 1931.—J. W. LONG. "Yes."—J. E. LOUSLEY. "A typical gathering. Ray recorded it from between Marazion and Penzance. An allied species, *P. oxyspermum* Meyer & Bunge, with longer, paler fruits and narrower leaves, which has been recorded from the east coast of Scotland and with some doubt from Redcar in N. Yorkshire, should be searched for elsewhere. Mr Wilmott's note in the *Journ. Bot.*, 1932, p. 83, also mentions a plant from the Isle of Arran and Dog's Bay, Galway, which resembles Prof. Samuelsson's *P. Raii* subsp. *norvegicum*. This west coast plant has narrow leaves and more numerous flowers. It is distinguishable in the field according to a note by Mr Mackechnie in the B.M. Herbarium. It requires further study."—A. H. G. ALSTON and A. B. JACKSON.

Rumex conglomeratus Murr. 1, W. Cornwall; dry pasture, alt. 300 ft., Lambourne Hill, Perranzabuloe, July 31st, 1945. Of the habitat of this species Babington's *Manual* says simply "Wet places" and Hooker's *Student's Flora* "Wet meadows and waste places." In Cornwall it certainly grows in wet places but seems equally at home in dry fields. Two questions seem suggested. Is there a difference of habitat due to difference of rainfall between the east and west of Great Britain? With plants common over most of Western Europe do our books sometimes give detail more applicable to continental growth than to British?—F. RILSTONE. "Yes, this is the state with ascending branches which is usual when the plant grows in drier places than those suggested by the floras. This occurrence in dry habitats is by no means restricted to the south-west, though it may be a little more common there and in the west and north as compared with the south-east of England. As Mr Rilstone's specimens show, the dry ground state also lacks the well-developed bracts right up to the ends of the branches which *conglomeratus* exhibits in the wetter habitats.—J. E. LOUSLEY.

Rumex dentatus L. 10, Isle of Wight; waste land, Newport, 1937.—J. W. LONG. "Useful specimens of this uncommon adventive and identical with those previously distributed from the same locality—see

B.E.C. 1936 Rep., 412, 1937. They represent ssp. *Halacsyi* (Rechinger) Rechinger fil. in *BBC.*, *49* (*2*), 16, 1932, which is native in an area from Turkestan and Afghanistan through Transcaucasia, South Russia and Asia Minor to the Balkans, and naturalised near Vienna and in Hungary."—J. E. LOUSLEY.

Euphorbia virgata W. & K. ? [" *Euphorbia* sp."] (Ref. No. 4803.) 8, S. Wilts.; waste ground, Sling, Bulford, May 2nd and Sept. 5th, 1945. This plant has a smaller inflorescence than that of the form distributed from Larkhill in 1937 and then named *E. virgata* f. *esulifolia* Thell. (See *B.E.C. 1937 Rep.*, 666, 1938; Ref. No. 2657.) It also differs in having obovate instead of oblong seeds and in its rather longer involucral horns, thus making an approach to the characters ascribed to " *E. Esula*."—J. D. GROSE. " This seems to be a form of the species known in Britain as *Euphorbia virgata* W. & K., a native of Hungary, introduced into British gardens in 1807 (according to Loudon's *Encyclopaedia* (1872), p. 404). *E. Esula* L. has much more tapering leaves, and was in cultivation in this country in 1739 as is shown by a specimen from the Chelsea Physic Garden. It is probably the " *Esula* " which Lobel (Pena & Lobel's *Nova Stirpium Adversaria*, p. 151) says was cultivated in pharmacists' gardens in England at the time of his visit in 1570. It is now much scarcer than *E. virgata* W. & K."—A. H. G. ALSTON. " There has long existed uncertainty in Europe as to the identities of *E. virgata* and *E. Esula*, and in North America a similar confusion has existed as to the correct names to be applied to certain naturalised and aggressively spreading Spurges of European or Eurasian origin. In a recent paper by Léon Croizat entitled " '*Euphorbia Esula*' in North America " (*American Midland Naturalist*, Vol. 33, No. 1, p. 231-243, Jan. 1945) the *Esula-virgata* problem is critically re-examined and the author is led to the conclusion that nearly all the plants which have received one or other of these names belong to *E. intercedens* Podp. (*Publ. Fac. Sc. Univ. Masaryk*, *12*: 29: 1922) which *may* be identical with *E. pseudolucida* Schur. (*Siebenbürg Ver. Naturwiss, Verhandl, Mittheil*, *3*: 123: 1852). Croizat's conclusion is probably also applicable to the British plants of ' *E. Esula* ' and ' *E. virgata*'."—W. A. SLEDGE. There are several different plants in this country. Their elucidation is held up by the imperfection of most specimens. The sterile shoots should be collected as well as the flowering ones, and the plants should be visited later for the collection of ripe seeds.—A. J. WILMOTT.

Ulmus glabra Huds. [" *U. scabra* Mill."] (Ref. No. 4574.) 17, Surrey; many trees of varying age on downland below Pebble Coombe, Betchworth, flowers April 5th, fruit May 10th, leaves Aug. 1942. Probably the offspring of several old and large trees by the road nearby.—E. C. WALLACE. " *U. glabra* Huds., a rather softly pubescent form."—R. MELVILLE.

Ulmus glabra Huds. [" *U. scabra* Mill."] (Ref. No. 4581.) 17, Surrey; laneside below Pebble Coombe Hill, Betchworth, flowers April 11th, fruit May 10th, leaves Sept. 1942.—E. C. WALLACE. " *U. glabra* Huds., approaching var. *montana* Lindquist."—R. MELVILLE.

Ulmus glabra Huds. × *Plotii* Druce. [" *Ulmus* ——."] (Ref. D.) 33, E. Glos.; side of main road opposite Woodmancote turning, Rendcomb, near Cirencester, May 15th, 1945. Small tree, 30-40 ft. high.—H. K. AIRY-SHAW. " *U. glabra* Huds. × *Plotii* Druce. Evidence of *U. Plotii* is seen in the leaf shapes, the coarse blunt dentation and small number of lateral nerves—11-12 on long sides—compared with 15+ in *U. glabra*."—R. MELVILLE.

Ulmus glabra Huds. × *Plotii* Druce. (Ref. A.) 33, E. Glos.; on bank, main road, opposite Clifferdine House, Rendcomb, near Cirencester, May 15th, 1945. Very fine large tree, 80-90 ft. high; habit more or less intermediate between the parents.—H. K. AIRY-SHAW. " Yes, substantially the same segregate as Ref. D."—R. MELVILLE.

Ulmus carpinifolia Gled. × *glabra* Huds. [" *U. carpinifolia* Gled."] (Ref. B.) 33, E. Glos.; above quarry on main road, Rendcomb, near Cirencester, May 15th, 1945. Sapling, 15-20 ft. high.—H. K. AIRY-SHAW. " The distinctly shouldered leaves with cuspidate tip, scabrid upper surface and hairy branchlets indicate *U. glabra* in this. A segregate of *U. carpinifolia* × *glabra* ad *U. carpinifoliam* vergens."—R. MELVILLE.

Ulmus carpinifolia Gled. × *glabra* Huds. [" *U. carpinifolia* Gled."] (Ref. C.) 33, E. Glos.; edge of wood above quarry on main road, Rendcomb, near Cirencester, May 15th, 1945. Tree, c. 40 ft. high.—H. K. AIRY-SHAW. " *U. carpinifolia* × *glabra*. The same remarks apply to this as Ref. B."—R. MELVILLE.

Ulmus Plotii Druce. (Ref. E.) 33, E. Glos.; in hedge, cross road above Bear Inn, Perrotts Brook, Bagendon, near Cirencester, May 15th, 1945. Slender sapling, 30-40 ft. high.—H. K. AIRY-SHAW. " Yes, but rather too young to show the leaf shapes well."—R. MELVILLE.

Ulmus procera Salisb. (Ref. No. 4573.) 17, Surrey; roadside, Howell Hill, Ewell, flowers April 5th, fruit May 1st, leaves Aug. 1942.—E. C. WALLACE. " Yes, the typical form."—R. MELVILLE. *U. anglica* Druce. I regard *U. procera* Salisb. as an illegitimate name substituted for " *U. campestris*."—A. J. WILMOTT.

Urtica pilulifera L. Origin not known. Cultivated at Newport, Isle of Wight, 1937.—J. W. LONG. " Yes."—R. MELVILLE.

Urtica pilulifera L. var. *Dodartii* (L.). Origin not known. Cultivated at Newport, Isle of Wight, 1937.—J. W. LONG. " Yes."—R. MELVILLE.

Alnus incana Medik. 62, North-east Yorks.; Kepwick Mill, July 13th, 1939.—Miss C. M. Rob. " Yes, but no doubt of cultivated origin. It is a native of Europe, where it is widely spread, but not a native of Britain. It reproduces itself freely from suckers which are often found at a considerable distance from the parent tree."—A. B. Jackson. " *Alnus incana.* It would be useful if members collecting aliens would give some idea of status, i.e. whether obviously planted, approximate number of trees, whether seedlings were observed, how far naturalised, habitat, etc. There is singularly little information of this kind available on aliens, particularly trees and shrubs (which for some reason are always neglected if alien, e.g. the thoroughly naturalised *Quercus Cerris* and *Rhododendron ponticum* which are nearly always omitted or dismissed with a mere mention in county floras and in the standard British floras). Apart from the contribution to a detailed knowledge of our flora, information of this kind would be very valuable in elucidating the problems of spread of plants in general."—E. F. Warburg. " There are about twelve trees, completely naturalized and reproducing freely by suckers, about half-a-mile from any house. It seems unlikely that these trees have been planted as they are growing in low-lying ground by the beckside, bordering an arable field. The associaed flora was the normal beckside plants, with quantities of *Alnus glutinosa* Gaertn., *Petasites*, *Allium ursinum* and *Corylus.* One branch of the beck runs through Kepwick Hall gardens, but I have seen no *A. incana* there." Miss C. M. Rob.

Carpinus Betulus L. (Ref. No. 972.) 35, Monm.; edge of large clearing in Garth Wood, near Monmouth, Sept. 24th, 1944.—R. Lewis. " Correct."—E. F. Warburg.

Salix alba L. × *fragilis* L. ♂. (Ref. No. 4796.) 7, N. Wilts.; hedge near Haydon Wick, Swindon, April 20th, and June 12th, 1945. This approaches very closely some of my sheets of *S. fragilis* ♂ and the twigs were more or less fragile at the base. Some of the younger leaves of both dates, however, have a little silky pubescence. The older leaves are very near *S. fragilis* in shape, but the broadest part is usually a little higher, and the serrations are less prominent. These older leaves, also, are not so grey below as in *S. fragilis.*—J. D. Grose. " Yes. *S. alba* × *fragilis* ad *S. fragilem* vergens."—R. Melville.

Salix alba L. × *fragilis* L. ♀. (Ref. No. 4806.) 7, N. Wilts.; hedge near Bincknoll, May 8th, and June 10th, 1945.—J. D. Grose. " Yes." —R. Melville. " The shape of the ovary shows clearly that this is the hybrid × *S. viridis* (*alba* × *fragilis*) rather than *S. fragilis.*—A. H. G. Alston and A. B. Jackson.

Salix Caprea L. (×*atrocinerea* Brot.) × *viminalis* L. ♂. [" *S. viminalis* L. ×——."] (Ref. No. 4807.) 7, N. Wilts.; field, Bicknoll, May 8th, and June 10th, 1945. Tree c. 30 ft. high.—J. D. Grose. " *S. Cap-*

rea (×*atrocinerea*) × *viminalis.* The shoot characters of this indicate *S. Caprea* and *S. viminalis* as parents, but the presence of scattered striations on the wood of 2-year branches suggests a strain of *S. atrocinerea* or *S. aurita*, probably the former. Complex willow hybrids must be common, as hybrids are generally fertile and readily cross with others in their chromosome group."—R. MELVILLE. " This appears to be *S. atrocinerea* × *viminalis* because striae are present and the leaves are not sinuate as in the hybrid with *S. aurita*. It matches well with Linton, no. 10."—A. B. JACKSON and A. H. G. ALSTON.

Salix atrocinerea Brot. forma. [" *S. atrocinerea* Brot. var. *aquatica* Sm.?"] (Ref. No. 4843.) 7, N. Wilts.; hedge, Wroughton, June 5th, 1945. Leaves greenish-yellow above, very glaucous below.—J. D. GROSE. " *S. atrocinerea* Brot. forma near var. *oleifolia* (Sm.) in leaf shape, but catkins should have been provided. The interneural chlorosis in this and No. 4842 is doubtless due to mineral deficiency."—R. MELVILLE.

Salix atrocinerea Brot. × *Caprea* L. ♀. [" *S. Caprea* L. × *atrocinerea* Brot. var. *aquatica* Sm.?"] (Ref. No. 4842.) 7, N. Wilts.; hedge, Wroughton, June 5th, 1945. Leaves greenish-yellow above, very glaucous below, subentire, the lower ones broadly obovate without tips. There are a few rusty hairs on the upper surfaces of the young leaves. The bush grew with normal *S. Caprea* and No. 4843.—J. D. GROSE. " Probably *S. Caprea* × *atrocinerea* tending towards *S. atrocinerea*." —R. MELVILLE.

Allium paradoxum G. Don. 65, North-west Yorks.; Camp Hill, Kirklington, April 19th, 1939.—Miss C. M. ROB. " Excellent specimens which will be very welcome from the Yorkshire station discovered by Miss Rob. The species has long been thoroughly naturalised in woods near Edinburgh (see *Trans. Bot. Soc. Edinb.*, 7, 458, 1863; *B.E.C. 1869 Rep.*, *14*, 1870; *Ann. Scot. Nat. Hist.*, *1895*, 258) and judging from the ten localities given by Martin (*Field-Club Fl. Lothians*, 71, 1927) is still increasing there."—J. E. LOUSLEY.

Juncus subnodulosus Schrank. (Ref. No. 4962.) 7, N. Wilts.; marsh near South Marston, Aug. 20th, 1945.—J. D. GROSE. " Correct."—P. W. RICHARDS.

Juncus pallidus R. Br., *Prod.*, 258, 1810. 21, Middlesex; a dozen or so large plants in a gravel-pit, East Bedfont, Aug. 18th, 1945. This locality was discovered by Mrs H. R. Davies earlier in the year and the plant shown to me by D. H. Kent. *J. pallidus* is widely distributed in Australia where it is known as " Pale Rush " and the general appearance of the growing plant somewhat recalls *J. acutus* L. from which it is readily distinguished by the absence of cylindrical stem-like leaves. At the time of writing no account of *J. pallidus* as an English plant has appeared but Mr J. E. Dandy has prepared a valuable note on its occurrence in Bedfordshire for the 1943-4 *Report*. The following extract from the key in J. M. Black's *Flora of South Australia*, Ed. 2, 181, 1943, should be useful in distinguishing the plant from its allies of which some have also been found in this country:—

- Stems very stout, pale; flowers single .... *J. pallidus* R. Br.
- Stems slender to medium.
  - Panicle-branches straight or almost so.
    - Flowers single in panicle.
      - Panicle dense or loose; capsule not longer than perianth; stems medium .... *J. polyanthemus* Buch.
      - Panicle loose; capsule usually exceeding perianth; stems slender .... *J. pauciflorus* R. Br.
    - Flowers clustered .... *J. vaginatus* R. Br.
  - Panicle-branches curved like a sickle; flowers single; slender plant .... *J. radula* Buch.

J. pallidus "is recognised by its stout rather pale rigid stem, filled with a solid white pith."—J. E. Lousley. "These specimens agree perfectly with the descriptions in Cheeseman's *Man. of the New Zealand Flora* (1906) and in Buchenau's Monograph in *Pflanzenreich, 4 (36)*, pp. 139-40 (1906); this is evidently the same as one of the introduced species recently found at Eaton Socon, Beds."—P. W. Richards.

Luzula Forsteri DC. (Ref. No. 1085.) 35, Monm.; roadside bank, Staunton Road near Monmouth, May 18th, 1945.—R. Lewis. "Correct. The seeds show the characteristic short, straight caruncle ('crest' of Hooker, Butcher & Strudwick, etc.)."—P. W. Richards.

Typha angustifolia L. × *latifolia* L. (Ref. Nos. 4762 and 4944.) 8, S. Wilts.; Clarendon Lake, Oct. 4th, 1944, and Aug. 8th, 1945. This plant was discovered by Mr C. D. Heginbothom in June 1944 and recorded in the *Wilts. Arch. and Nat. Hist. Mag., 51,* 32, 1945, as *T. angustifolia*, which species it more nearly resembles.—J. D. Grose. "It appears likely that these specimens are *Typha angustifolia* L. × *T. latifolia* L. The leaves are intermediate in width between the normal for the two species, though there is a considerable range of variation and a slight overlap. Measurements of the leaves of the two species gave the following results: *T. angustifolia* (3) 4-5 (8) mm., *T. latifolia* (7) 16-18 (25) mm. The leaves of the specimens I have seen of nos. 4762 and 4944 are 7-9 mm. wide. The male and female parts of the spadix are separated by a very small gap or are almost contiguous and the upper portion of the female part of the spadix is poorly developed, which is not inconsistent with the possibility of hybrid origin, though both species show considerable variation in this respect. The most convincing evidence is the apparent absence of any well-formed fruits in no. 4762 which was collected late enough in the year to have formed them had it been fertile. This sterility is what would be expected in view of the chromosome numbers reported by Roscoe (*Bot. Gaz., 84,* 392, 1927). These are: *T. latifolia* 2n = 30, *T. angustifolia* 2n = 60, so that a hybrid would probably have 2n = 45 and be sterile. The pollen is normally in tetrads but in these specimens the grains are separate and many appear to be imperfect. The absence of *T. angustifolia* from Clarendon Lake, reported by Mr Grose, does not rule out the possibility of hybrid origin as *Typha* species seem to be long-lived plants and certainly spread extensively by vegetative means."—T. G. Tutin. "I have not seen material of this gathering but presume that it is identical with a very interesting plant which Mr Grose sent to me from Clarendon Lake on October 4th, 1944, and which I saw *in situ* on September 17th, 1945, from directions which he supplied. This plant grows in quantity along the south side of the Lake and extends for at least 200 yards up the west side where it is associated with *T. latifolia*. The tall habit (c. 2 metres) and narrow leaves at once attract attention, while the longer, more slender, reddish-brown female spikes which are often tapering towards the apex are very different from the very dark brown dumpy spikes of *T. latifolia* L. Closer examination shows that most of the characters such as the 1-3 cm. gap which occurs in many specimens between the male and female spikes, and the filiform stigmas are those of *T. angustifolia* L., but the plant is much larger than that species in all its parts. The width of the leaves varies from about 5 mm. to 1 cm., and they are glaucous towards the base. Bifurcated female spikes are not uncommon. It is possible that the Clarendon plant is a tall strong variety of *T. angustifolia* (such as *T. elatior* Boenningh., *Prodr. fl. Monast.*, 274, 1824, seems to be) but it is more probably a hybrid between the two British species. French and German authors who have described plants believed to be hybrids of this parentage have evidently found them behaving in a similar manner—i.e. apparently fertile and spreading vegetatively. The Clarendon material seems very near to *T. glauca* Godron, *Fl. Lorr.*, "ed. 1, *3*, 20, 1844"; ed. 2, *2*, 332, 1861; Gren. & Godr., *Fl. Fr.*, *3*, 335, 1856; ×*T. glauca* (Godron) Rouy, *Fl. Fr.*, *13*, 334, 1912, though the blue-green colour of the leaves is less marked than one would suppose from the remarks on this form of the cross in Ascherson & Graebner, *Synopsis*, *1*, 278, 1897. Although *T. angustifolia* may be absent from Clarendon Lake (I only examined one side and part of another) this would be no evidence that the plant distributed is not of hybrid origin. It is possible that *T. angustifolia* may have grown there formerly in company of *T. latifolia* but it is even more likely that ×*T. glauca* has been deliberately introduced as an ornamental plant and has increased vegetatively. A similar plant was apparently found by Rev. Revett Sheppard in the marshes of Great Oakley, Essex (Smith, *Engl. Fl.*, *4*, 72, 1828); ×*T. glauca* has been recorded from S. Lincs. (*B.E.C. 1913 Rep.*, 343, 1914) and Northants (Druce, *Fl. Northants*, 237, 1930), and hybrids of the same parentage from Dorset (*B.E.C. 1917 Rep.*, 130, 1918) and W. Norfolk (*B.E.C. 1918 Rep.*, 403, 1919). There is a very full description of the hybrid by Alm and Weimarck in *Bot. Not.*, 279-284, 1933, illustrated with a photograph of a plant which is an excellent match for the one from Clarendon Lake."—J. E. Lousley.

×*Potamogeton nitens* Weber. (Ref. No. 5498.) 64, Mid-west Yorks.; abundant in the stream issuing from Malham Tarn, near the road south of the Tarn, July 23rd, 1944. Growing with *P. gramineus*; no *P. perfoliatus* was seen.—E. C. WALLACE. " ×*P. nitens* Weber. Discovered in this locality by J. E. Lousley in 1935; see *Journ. Bot.*, 77, 255 (1939). The parent species, *P. gramineus* and *P. perfoliatus*, both occur in the same water, for though we have no record of *P. perfoliatus* from the effluent stream this species is found in Malham Tarn itself and was collected there by G. Taylor in 1941."—J. E. DANDY and G. TAYLOR.

×*Potamogeton Lintonii* Fryer. (*P. crispus* L. × *Friesii* Rupr.) (Ref. No. 43.) 56, Notts.; Chesterfield Canal, Gringley-on-the-Hill, Aug. 2nd, 1945.—W. A. SLEDGE. " ×*Potamogeton Lintonii* Fryer. Recorded from this locality in *Journ. Bot.*, 77, 256, 310 (1939). The type-locality of the hybrid is at Renishaw, in the Derbyshire portion of the same canal."—J. E. DANDY and G. TAYLOR.

Potamogeton obtusifolius Mert. & Koch. 38, Warwicks.; Edgbaston Pool, Birmingham, barely two miles from the centre of the city, Aug. 6th, 1945. A rare plant in Warwickshire.—R. C. L. BURGES. " *P. obtusifolius* Mert. & Koch."—J. E. DANDY and G. TAYLOR.

Potamogeton trichoides Cham. & Schlecht. (Ref. No. 5506.) 63, South-west Yorks.; Calder Navigation Canal between Dewsbury and Thornhill, July 22nd, 1944. Fairly abundant at margin of the somewhat dirty canal; no fruiting material seen. Some of the characteristic terminal winter resting buds were seen, but all the sheets contributed do not show them. Dr G. Taylor kindly gave me directions for finding this plant which appears to be not uncommon in the Aire and Calder valleys of Yorkshire.—E. C. WALLACE. " *P. trichoides* Cham. & Schlecht. See F. A. Lees, *Suppl. York. Fl.*, 110 (1941). This species has been much overlooked, apparently owing to the fact that, in many of its stations, it rarely flowers and still more rarely fruits.—J. E. DANDY and G. TAYLOR.

Cyperus longus L. Origin: 10, Isle of Wight; Apes Down. Cultivated at Newport, Isle of Wight, 1945.—J. W. LONG. " Yes."—F. BALLARD.

Cyperus longus L. 45, Pembs.; Penally Marsh, Aug. 26th, 1940.—Coll. F. P. RAMSDEN; comm. DEPT. OF BOTANY, NATIONAL MUSEUM OF WALES. " Yes."—F. BALLARD.

Scirpus Tabernaemontani Gmel. (Ref. No. 4870.) 7, N. Wilts.; Christian Malford, June 17th, 1945. The distinguishing characters in this gathering are by no means so well-defined as in specimens taken from the same locality in 1942. There is a greater proportion of 3-fid stigmas, and the glumes are less asperous. The character of the longer bristle-hairs seems to hold good.—J. D. Grose. "Probably this. The characters of this species are often accentuated by drought and when the water-level has been high, and it is often difficult to find 'absolute' characters to separate it from *S. lacustris*."—J. E. Lousley. "I concur with Mr Lousley."—F. Ballard.

Scirpus Tabernaemontani Gmel. (Ref. No. 4967.) 7, N. Wilts.; Christian Malford, Aug. 22nd, 1945.—J D. Grose. "I should regard all these as *S. Tabernaemontani*."—J. E. Lousley. "Correctly named." F. Ballard.

Carex sylvatica Huds. forma. (Ref. No. 4840.) 7, N. Wilts.; Clout's Wood, Wroughton, June 5th, 1945. This form with compound spikelets grows in several of the woods near Swindon. I have not seen it elsewhere, but J. Cryer distributed a similar plant from Yorkshire (*B.E.C. 1907 Rep.*, 317, 1908).—J. D. Grose. "A considerable number of *Carices* have this tendency, which seems a move back towards the earlier, panicled type, still represented in the tropics. I have seen these compound spikes before in *C. sylvatica*, and in others such as *C. flacca*, *C. riparia*, *C. acuta*, etc."—E. Nelmes.

Carex strigosa Huds. (Ref. No. 1106.) 35, Monm.; abundant, brookside in Reddings Inclosure, near Monmouth, June 4th, 1945.—R. Lewis. "Correct."—E. Nelmes.

Carex Hostiana DC. × *lepidocarpa* Tausch. (Ref. No. 5176.) 64, Mid-west Yorks.; by stream, Sunley Rains, near Ripon, June 26th, 1943. Growing with the parents and *C. panicea*.—E. C. Wallace. "Correct."—E. Nelmes.

Carex tumidicarpa Anderss. (Ref. No. 850.) 34, W. Glos.; damp path by stream on cleared slope of wood between Little Dean and Soudley, June 19th, 1945.—E. Nelmes.

Carex tumidicarpa Anders. (Ref. No. 858.) 34, W. Glos.; damp ride on yellow clay in Michael Wood, near Stone, June 26th, 1945.—E. Nelmes.

Carex lepidocarpa Tausch. (Ref. No. 855.) 33, E. Glos.; runnel from spring in field about half a mile N.E. of Brimpsfield, June 22nd, 1945.—E. Nelmes.

Carex digitata L. (Ref. No. 823.) 33, E. Glos.; grassy open slope in Detcombe Wood, Slad Valley, one and a half miles east of Painswick, April 18th, 1945.—E. Nelmes.

Carex montana L. (Ref. No. 38.) 57, Derby; Markland Grips near Clowne, May 23rd, 1942.—W. A. Sledge. "Yes."—E. Nelmes.

Carex hyperborea Drej. ? ["*C. aquatilis* Wahl. × *nigra* (L.) Reichard."] (Ref. No. 4390.) 88, Mid Perth; bog on east side of Ben More, June 27th, 1940. My naming in the field, though I am not now so confident, the specimens appearing nearer to *nigra* (*Goodenowii* Gay) than *aquatilis*. The habitat carries many forms of *aquatilis*, *nigra* and *rigida* besides plants of probable hybrid origin.—E. C. WALLACE. "This does not appear to me to have any *C. aquatilis* in it. It may be *C. rigida* × *nigra*, but does not match any of the usual forms of this hybrid. I am most inclined to regard it as *C. hyperborea* Drej. (*C. rigida* var. *inferalpina* Laest.) but until I can see the type of this species I cannot give a definite opinion."—E. NELMES.

Carex vulpina L. (Ref. No. 852.) 33, E. Glos.; withy beds between Gloucester and Walham, June 22nd, 1945.—E. NELMES.

Carex Pairaei F. Schultz. ["*C. spicata* Huds."] 62, North-east Yorks.; Hall Gate, Catton, July 1st, 1945.—Miss C. M. ROB. "*C. Pairaei* F. Schultz."—E. NELMES.

Carex polyphylla Kar. & Kir. ["*C. spicata* Huds."] 65, North-west Yorks.; Cotescue Park Gate, Coverham, July 4th, 1945.—Miss C. M. ROB. "*C. polyphylla* Kar. & Kir."—E. NELMES.

Carex polyphylla Kar & Kir. var. ["*C. Leersii* F. Schultz."] (Ref. No. 5521.) 64, Mid-west Yorks.; hedgebank in lane at Copgrove, Aug. 10th, 1944.—E. C. WALLACE. "A puzzling plant which in general appearance is intermediate between *C. polyphylla* Kar. & Kir. (*C. Leersii* F. Schultz, non Willd.) and *C. divulsa* Stokes, but appears to be nearer the former. It grows with *C. polyphylla* on the Cotswolds (limestone), whereas *C. divulsa* seems to prefer clayey and sandy soils. At present I regard Mr Wallace's plant as a variety of *C. polyphylla*. Similar plants are at Kew from E. and W. Glos. and W. Norfolk."—E. NELMES.

Carex divulsa Stokes. (Ref. No. 5522.) 64, Mid-west Yorks.; hedgebank in village of East Keswick, July 20th, 1944. A new station for this scarce Yorkshire sedge.—E. C. WALLACE. "Correct."—E. NELMES.

Carex divulsa Stokes. 65, North-west Yorks.; Coverham, July 4th, 1945. A rare plant in Yorkshire.—Miss C. M. ROB. "Correct."—E. NELMES.

Carex pauciflora Lightf. (Ref. No. 41.) 70, Cumberland; Dock Tarn, Stonethwaite, Borrowdale, July 8th, 1944. Not given for Cumberland in *Topographical Botany* or the *Comital Flora* though there is a record in Hodgson's *Flora of Cumberland* (1898) for the district to the north of Saddleback. W. R. Philipson found it in 1931 (*Journ. Bot.*, 1933, 76) "near Stonethwaite" claiming erroneously that his was the first record for the county. His station was probably the same as that from which these specimens were collected and where it is plentiful over a considerable area."—W. A. SLEDGE. "Yes."—E. NELMES.

Carex dioica L. var. *isogyna* (Fr.) Hartm. (Ref. No. 4340.) 98, Argyll; slopes of Ben Douran above Bridge of Orchy station, June 21st, 1940. See *B.E.C. 1939-40 Rep.*, pp. 264, 317 (1942).—E. C. Wallace. "Yes, good examples of this variety. These pistillate flowers produced below the male spike probably represent the lost secondary spikes of the ancestors of *C. dioica*. Among evidences of the relationship between this species and multispicate species is the readiness with which it hybridizes with members of the *Stellulatae* (*C. echinata* Murr.) and the *Canescentes* (*C. curta* Gooden.)."—E. Nelmes.

Setaria viridis (L.) Beauv. var. *major* (Gaud.) Koch. 62, North-east Yorks.; carrot field, Topcliffe Station, Sept. 18th, 1945. This plant has appeared in several fields in this district this year, always in carrots, and with *Panicum Crus-galli*.—Miss C. M. Rob. "*Setaria viridis* (L.) Beauv. var. *major* (Gaud.) Koch."—C. E. Hubbard.

Agrostis tenuis Sibth. var. *hispida* (Willd.) Philipson. 62, North-east Yorks.; Catton Hall "House field," July 1st, 1945.—Miss C. M. Rob. "*Agrostis tenuis* var. *hispida* (Willd.) Philipson, infected with *Tilletia decipiens* (Pers.) Körn."—W. R. Philipson.

Polypogon monspeliensis (L.) Desf. 28, West Norfolk; Cley, July 6th, 1945.—R. C. L. Burges. "*Polypogon monspeliensis* (L.) Desf."—C. E. Hubbard.

Deschampsia caespitosa (L.) Beauv. var. *parviflora* (Thuill.) Richt. ["*Deschampsia caespitosa* (L.) Beauv. var."] (Ref. No. 4924.) 7, N. Wilts.; newly-cleared woodland near Chittoe, July 18th, 1945. Inflorescence pale yellow; growing with the normal form.—J. D. Grose. "*Deschampsia caespitosa* (L.) Beauv. var. *parviflora* (Thuill.) Richt. This small-spiculate variety is often met with in oak woodlands on heavy soils. The spikelets, which range from 2-3.5 mm. in length, exhibit a wide range of colour forms from pale green to silvery-green, golden to purplish shades."—C. E. Hubbard.

Avena Ludoviciana Durieu. (Ref. No. 12819.) 22, Berks.; frequent along grassy margin of cultivated field, on heavy soil, Kennington, near Oxford, July 7th, 1945. During the past ten years this weed of arable land has been gathered in South Wiltshire, Hertfordshire, Berkshire, Oxfordshire, Buckinghamshire, Bedfordshire, Northamptonshire, Warwickshire and Worcestershire. In some crops, particularly cereals and beans, it is often very abundant, so much so in a few fields of beans in Warwickshire that in the distance one might easily mistake these for fields of oats.—C. E. Hubbard.

Avena fatua L. var. *glabrata* Peterm. (Ref. No. 12758.) 23, Oxon.; frequent weed in field of wheat between Wolvercote and Yarnton, June 24th, 1945.—C. E. Hubbard.

Koeleria gracilis Pers. (*s.l.*) ["*Koeleria britannica* Domin?"] (Ref. No. 4853.) 7, N. Wilts.; on gravel near Ashlade Firs, Savernake Forest, June 13th, 1945. Radical leaves narrow, short and ± erect.—J. D. Grose. "Domin's subdivision of *K. cristata* Pers. *sens. amplo* into several species is unworkable in practice, especially when dealing with large gatherings of material. It is found that there are no defined limits and that his species merge into one another. Generally speaking, it is possible to distinguish *K. albescens* DC. by its loosely caespitose to somewhat creeping habit, its lower sheaths which are downy and somewhat rough, and its capillary, rolled leaves which are sparsely provided with stiff bristles along their margins. The remaining forms are compactly caespitose, vary in degree of pubescence and to some extent in leaf characters. At the extremes are *K. ciliata* Kerner which is almost glabrous but has long ciliate hairs along the margins of usually flat leaves, and *K. britannica* Domin which is pubescent from basal sheaths to spikelets. An intermediate form is *K. gracilis* Pers. with pubescent sheaths and laminae. The two latter have also folded, narrow leaves. 4853 is nearest to *K. britannica*."—W. O. Howarth. "I agree entirely with Dr Howarth's remarks that Domin's subdivision of *K. cristata* into numerous species (also subspecies and varieties) is unworkable. Until a more satisfactory arrangement based on cytological and intensive morphological studies of both wild and cultivated plants, has been prepared, it seems preferable to treat this complex as one species."—C. E. Hubbard.

Koeleria gracilis Pers. (*s.l.*). ["*Koeleria britannica* Domin?"] (Ref. No. 4854.) 7, N. Wilts.; on gravel near Ashlade Firs, Savernake Forest, June 13th, 1945. Radical leaves broader, longer and more spreading.—J. D. Grose. "4854 is somewhat less pubescent, but also near *K. britannica*."—W. O. Howarth.

Koeleria gracilis Pers. (*s.l.*). ["*Koeleria* sp."] (Ref. No. 4881.) 7, N. Wilts.; on chalk, Martinsell Hill, July 1st, 1945.—J. D. Grose. "4881 is probably a dwarfed form between *K. gracilis* and *K. ciliata*."—W. O. Howarth.

×*Glyceria pedicellata* Townsend (*G. fluitans* (L.) R. Br. × *G. plicata* Fries). (Ref. No. 12744.) 23, Oxon.; in shallow stagnant water of ditch near railway, Yarnton, near Oxford; both parents nearby in separate patches, June 14th, 1945. This sterile hybrid is of frequent occurrence in the neighbourhood of Oxford.—C. E. Hubbard.

Glyceria plicata Fries. (Ref. No. 12820.) 23, Oxon.; shallow muddy pond in pasture between Yarnton and Bladon, July 4th, 1945.—C. E. Hubbard.

×*Festulolium loliaceum* (Huds.) P. Fournier (*Festuca loliacea* Huds.; *Festuca pratensis* Huds. × *Lolium perenne* L.). (Ref. No. 12740.) 22, Berks.; in low-lying meadow near river, left for hay, very common, Wytham, near Oxford, June 24th, 1945. Common in the water-meadows of the Oxford district.—C. E. HUBBARD.

× *Festulolium loliaceum* (Huds.) P. Fournier (*Festuca loliacea* Huds.; *Festuca pratensis* Huds. × *Lolium perenne* L.) ["*Festuca elatior* L. × *Lolium perenne* L."] 65, North-west Yorks.; East Witton, July 4th, 1945.—Miss C. M. ROB. "Correct."—C. E. HUBBARD and W. O. HOWARTH.

× *Festulolium loliaceum* (Huds.) P. Fournier (*Festuca loliacea* Huds.; *Festuca pratensis* Huds. × *Lolium perenne* L.) (det. C. E. Hubbard). (Ref. No. 5217.) 64, Mid-west Yorks.; roadside, Ripley, Harrogate, June 20th, 1944. A large clump first noticed in 1943, obviously introduced with other grasses when the roadside verge was laid out on widening of road.—E. C. WALLACE. "Correct."—W. O. HOWARTH.

Festuca altissima All. (*Festuca sylvatica* Vill. non Huds.), confirmed by W. O. Howarth. (Ref. No. 1099.) 35, Monm.; on a steep, rocky bank, edge of Garth Wood, roadside, Staunton Road, near Monmouth, May 30th, 1945.—R. LEWIS. "*Festuca altissima* All."—C. E. HUBBARD.

Festuca rubra L. var. *vulgaris* Gaud. (det. W. O. Howarth.) (Ref. No. 4830a.) 7, N. Wilts.; waste ground, Holt Junction, May 30th, 1945. —J. D. GROSE.

Festuca rubra L. var. *commutata* Gaud. (det. W. O. Howarth.) (Ref. No. 4874.) 7, N. Wilts.; meadow, Hodson, June 26th, 1945.—J. D. GROSE.

Festuca rubra L. ad. var. *megastachys* Gaud. verg. (det. W. O. Howarth). (Ref. 4830.) 7, N. Wilts.; waste ground, Holt Junction, May 30th, 1945.—J. D. GROSE.

Festuca tenuifolia Sibth. (det. W. O. Howarth.) (Ref. No. 1104.) 35, Monm.; on dry sandy bank, "Warfields," Staunton Road, Monmouth, June 2nd, 1945.—R. LEWIS. "Correct."—C. E. HUBBARD.

Bromus erectus Huds. var. *villosus* (Mert. & Koch) Leight. (Ref. No. 12721.) 22, Berks.; grassy margin of arable field between Wytham and Botley, near Oxford, June 10th, 1945. A form with hairy culms, leaves and spikelets.—C. E. HUBBARD.

Bromus erectus Huds. var. *villosus* (Mert. & Koch) Leight. (Ref. No. 12753.) 23, Oxon.; isolated tuft amongst glabrous-spiculate plants in rough grassland by Oxford Canal, Wolvercote, Oxford, June 2nd, 1945. —C. E. HUBBARD.

Bromus commutatus Schrad. (Ref. No. 12731.) 23, Oxon.; in low-lying meadow left for hay, abundant, Yarnton, north of Oxford, June 14th, 1945. Inflorescence nodding.—C. E. HUBBARD.

Bromus commutatus Schrad. (Ref. No. 12825.) 23, Oxon.; corner of water-meadow near ditch, Yarnton, July 4th, 1945. This is the habitat form from rich well-watered soils which was named var. *multiflorus* by Parnell.—C. E. HUBBARD.

Bromus commutatus Schrad. var. *pubens* Watson (*Phytologist, 1*, 1062: 1844). (Ref. No. 12822.) 23, Oxon.; abundant in grassy track of Frogwelldown Lane, between Yarnton and Bladon, July 4th, 1945. Spikelets one to many to each inflorescence.—C. E. HUBBARD.

Bromus commutatus Schrad. var. *pubens* Watson. (Ref. No. 12823.) 23, Oxon.; luxuriant plants from old stack-bottom, corner of cultivated field near Frogwelldown Lane, between Yarnton and Bladon, July 4th, 1945. Panicles nodding, greyish-green.—C. E. HUBBARD.

Bromus racemosus L. (Ref. No. 12821.) 23, Oxon.; frequent in rough, low-lying grassland near the R. Cherwell, between Marston and Cutteslowe, Oxford, July 1st, 1945.—C. E. HUBBARD.

Bromus racemosus L. (Ref. No. 12824.) 23, Oxon.; on old stack-bottom, corner of cultivated field near Frogwelldown Lane, between Yarnton and Bladon, July 4th, 1945. Inflorescence erect.—C. E. HUBBARD and W. B. TURRILL.

Bromus racemosus L. (det. C. E. Hubbard). (Ref. No. 4851.) 7, N. Wilts.; meadow, Haydon Wick, Swindon, June 12th, 1945.—J. D. GROSE.

Bromus Thominii Hard. (*B. hordeaceus* L. sensu Holmberg). (Ref. No. 12748.) 23, Oxon.; frequent amongst *Lolium perenne* on roadsides near Cassington, June 14th, 1945.—C. E. HUBBARD. " I have not seen Hardouin's original description but according to Rouy, *Flore de France*, *14*, 237, *B. Thominii* is a plant with spreading or decumbent stems, rarely erect and not exceeding 20 centimetres in height; with a short compact ovoid panicle. The habitat is given as maritime soils. Hegi in his *Flora von Mittel-Europa*, giving a description which agrees with that of Rouy, stresses the dwarf habit of *B. Thominii*."—A. E. WADE. " I do not think my interpretation of *Bromus Thominii* is very different, except for size of plants, from that of the original author. The annual Bromes vary much in size according to habitat conditions; thus in most species a series of specimens may often be gathered in the same locality ranging from a few inches to two feet or more in height, and with one to many spikelets to each inflorescence, the small plants coming from poor dry soils and the vigorous ones from moister rich soils. *Bromus Thominii* Hard. is no exception. Specimens of this grass collected by L. Hardouin and F. Renou, distributed by " Puel et Maille, *Herbier des Flores locales de France*, no. 208 " and cited under *Serrafalcus Thominii* by Rouy (*Fl. France*, *14*, 237), agree perfectly with dwarf plants collected by myself (no. 12718) at Wolvercote, Oxford, on June

2nd, 1945. In the Oxford district a complete series of specimens may be gathered connecting this dwarf state with the vigorous plants of Hubbard 12745 which is being distributed."—C. E. HUBBARD.

Bromus Thominii Hard. (Ref. No. 12745.) 23, Oxon.; luxuriant plants from rich soil on grass verge of Northern Bypass, Wolvercote, near Oxford, June 14th, 1945.—C. E. HUBBARD.

Bromus lepidus Holmb. (Ref. No. 12752.) 23, Oxon.; side of towing path of Oxford Canal, and on roadside banks, Wolvercote, Oxford, June 2nd, 1945.—C. E. HUBBARD.

Agropyron repens (L.) Beauv. var. *dumetorum* (Hoffm.) Roem. & Schult. 41, Glam.; cultivated ground, Roath Park, Cardiff, Aug. 10th, 1945.—Coll. A. E. WADE; comm. DEPT. OF BOTANY, NATIONAL MUSEUM OF WALES. "Correct."—C. E. HUBBARD.

Agropyron caninum (L.) Beauv. var. (Ref. No. 12741.) 22, Berks.; locally abundant on shaded bank on moist slope near Seacourt Stream, between Wytham and Botley, near Oxford, June 24th, 1945. Spikes, peduncles, upper leaf-sheaths and nodes conspicuously pruinose. This is probably var. *glaucum* Lange (*Bot. Tidsskr.*, *2*, 37: 1867), but no material of this variant has been available for comparison. The whitish inflorescence and sheaths were very conspicuous against the green blades of this and other grasses.—C. E. HUBBARD.

Equisetum pratense Ehrh. 34, W. Glos.; rockery in the garden of Westonbirt School, no doubt introduced with some of the cultivated plants, May 23rd, 1945.—A. B. JACKSON. The plant is persistent at Westonbirt where Mr Jackson showed it me in 1939.—J. D. GROSE.

Dryopteris Borreri Newm. ["*D. Filix-mas* (L.) Schott var. *paleacea* (Don) Druce."] (Ref. No. 1105.) 35, Monm.; small, shady valley in Reddings Inclosure, near Monmouth, June 4th, 1945.—R. LEWIS. "I agree that this is *D. Filix-mas* var. *paleacea* of British books, but prefer to call it *D. Borreri* Newm. as a species. This plant differs from typical *D. Filix-mas* in chromosome number and by being apogamous. On this Prof. Manton has published a note in *Nature*, *144*, p. 291. As for the name *paleacea*, *D. paleacea* (Sw.) C. Chr. is more robust with longer and more coriaceous fronds and more impressed veins. It ranges along the Andes from Mexico to Argentina, but is not found in Europe. Don's *Aspidium paleaceum* was from Nepal, collected by Wallich, and the scales are described as "atrorufis." I have seen many Indian specimens with black scales which I have never seen in Britain. I think that the Himalayan plant is also different, and that *D. Borreri* Newm. should be the name used for the British plant, which occurs on the continent in Switzerland, Baden, the Tyrol, Caucasus and western and southern Europe, but not in Scandinavia."—A. H. G. ALSTON.

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BY

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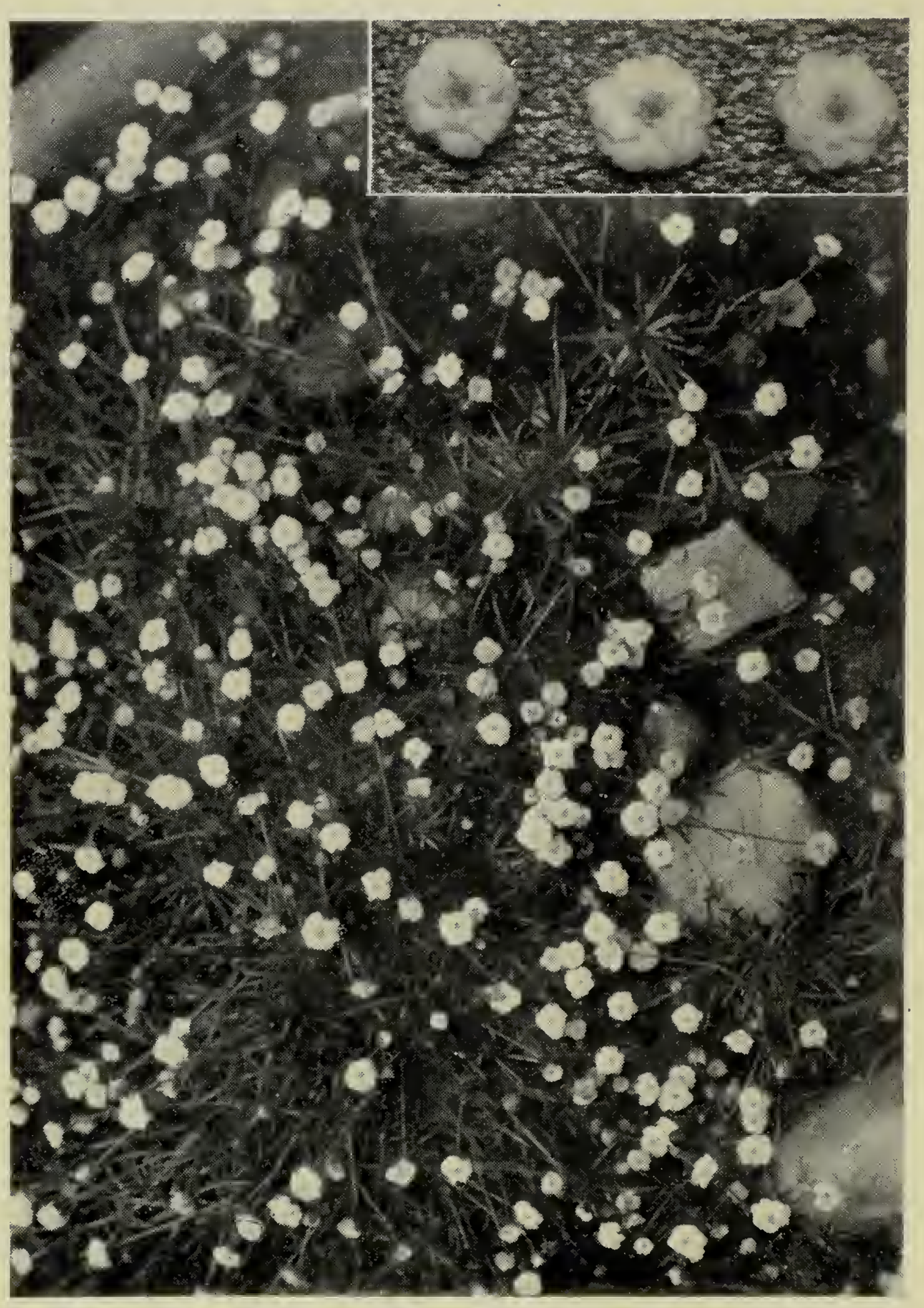

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Thomas, Charles, Arden, 48 Manor Road, North Edgbaston, Birmingham 16.
Thomas, Miss E. Mary, Moorfield, Nottage, Porthcawl, Glam.
Thompson, B. H., 8 Broadway West, Gosforth, Newcastle-upon-Tyne.
Thorold, C. A., Hele, Bradninch, Devon.
Tindall, Mrs K. B., West Downs, Winchester, Hants.
Tod. William A., Badnellan, Brora, Sutherlandshire.
Todd, Miss E. S., St Katherines, Wantage, Berks.
Toke, Chas. Hugh, The Haven, Green Lane, Crowborough, Sussex.
Townsend, C. C., 68 Gloucester Road, Cheltenham, Glos.
Travis, W. G., 9 Barton Road, Liverpool 9.
S Tunbridge Wells Municipal Museum, 6 Upper Grosvenor Road, Tunbridge Wells, Kent.
Turnbull, Miss E., Stone Lodge, Vines Lane, Hildenborough, Kent.
Turner, A., 140 Pine Street, Nelson, Lancs.
† Turrill, W. B., D.Sc., F.L.S., Keeper, The Herbarium, Royal Botanic Gardens, Kew, Surrey.
Tutin, Prof. T. G., University College, Leicester.
† Twist, A. F., Tarrant Gunville, Blandford, Dorset.

† Vachell, Miss Eleanor, F.L.S., Fairfield, Ely Road, Llandaff, Cardiff.
† Valentine, D. H., M.A., Ph.D., F.L.S., Dept. of Botany, University Science Laboratories, South Road, Durham.
Vaughan, John Griffith, B.Sc., 8 Grawen, Brecon Road, Merthyr Tydfil, Glam.
Verdcourt, B., 86 Claremont Road, Luton, Beds.
Verschoyle. Mrs W., Old Vicarage, Ospringe, Faversham, Kent.
S Victoria, The Public Library of, Melbourne, c/o Truslove and Hanson, 153 Oxford Street, W.1.
Vivian, Miss C., 37 Wilton Crescent, London, S.W.1.

† Wade, A. E., F.L.S., Dept. of Botany, National Museum of Wales, Cardiff.
Waldy, Hon. Mrs H. P., Sonameg, Higher Sea Lane, Charmouth, Dorset.
S Wales, National Museum of, Dept of Botany (Keeper, H. A. Hyde, M.A., F.L.S.), Cardiff
† Wallace, E. C., 2 Strathearn Road, Sutton, Surrey.
Walters, S. M., St John's College, Cambridge.
Warburg, Dr E F., Dept. of Botany, The University, Oxford.
Ward, B. T., 24 Long Deacon Road, Chingford, London, E.4.
Warner, S. Allen, M.P.S., Whitelea, Broadway, Didcot, Berks.

L Warren, W. E., Selborne, Horsell Rise, Horsell. Woking, Surrey.
F Warren, Mrs W. E., Selborne, Horsell Rise. Horsell, Woking, Surrey.
P Washington, U.S. Dept. of Agriculture, The Librarian. Washington. D.C., U.S.A.
Watchorn, Dr Elsie, 25 Luard Road, Cambridge.
† Watson, Wm., 245 Southlands Road, Bickley, Kent.
L Watt, Mrs H. Boyd, M.B.O.U., F.Z.S., 9 St Swithin's Road, Bournemouth.
Watts, Lt.-Col. G. A. R., Highbury, Victoria Road, Fleet, Hants.
Webb, D. A., Trinity College, Dublin.
Webster, Miss M. McCallum, c/o Bank of Scotland, Macduff, Banff.
L Wedgwood, Mrs, The Leaze, Barnfield, Marlborough, Wilts.
S Wedgwood Herbarium, The, Marlborough College. Wilts.
Welch, Mrs B., B.Sc., 49 Lichfield Court, Richmond, Surrey.
Wells, Mrs E. M., 4 Chellow Terrace, Chellow Dene, Bradford, Yorks.
West, Dr C., " The Cowl House," Holt Wood, Aylesford, Kent.
Wethered, Miss D. M., Byways, Cleeve. near Bristol.
Weyer, Major B. G. Van de, South Marston Manor, Swindon, Wilts.
† Whellan, J. A., 42 Stamford Street, Liverpool 7.
Whitehead, F. N., New College. Oxford.
Whiting, Miss M. M., Rosemary Cottage, Blythburgh, Suffolk.
Whitwell, Mrs, Almond Trees, Abberbury Road, Iffley, Oxford.
Wickham, Miss C., Edington House, near Bridgwater, Somerset.
Wilkinson, J. S., 26 Golder's Rise, Hendon, N.W.14.
Willan, Mrs Hugh, Bridges, Teffont, Salisbury, Wilts.
Williams, E. G., M.A., F.R.I.C., 61 Earlsway, Curzon Park, Chester.
Williams, Mrs F. R., 234 Highland Avenue, Winchester, Mass., U.S.A.
Williams, I. A., West Hall, Kew Gardens, Surrey.
Williams, John E. Miles, High Street, Berkeley, Glos.
Williams, Rev. M. L., 8 Bedford Road, Horsham, Sussex.
Williams, Dr W. B., 59 Station Road, Portslade, Sussex.
Williams, Dr W. T., Botany Department, Bedford College for Women. London, N.W.1.
† Wilson, Albert, F.L.S., Pear Tree Cottage. Priest Hutton, Carnforth, Lancs.
Wilson, L. W., 4 Pembroke Avenue, Margate. Kent.
Wood, Miss A. F., The Cottage, Hedsor Park. Bourne End, Bucks.
Woodhead, J. E., B.Sc., F.I.C., Ph.C., 325 Kennington Road, London, S.E.11.
†L Wright, Dr F. R. Elliston, Braunton, N. Devon.

Yeoman, Miss Ruth, The Green. Brompton, Northallerton, Yorks.
S York Public Library, City of, York.
Young, Rev. Andrew, Stonegate, Tunbridge Wells. Kent.
† Young, Donald P., B.Sc., Ph.D., A.R.I.C., " Green Woods," 3 Essendon Road, Sanderstead, Surrey.
L Young, Miss Gertrude A., 5 Woodlands Terrace, Glasgow, C.3.

SUMMARY OF THE ABOVE MEMBERSHIP LIST.

Honorary Members		23
Life Members		20
Ordinary Members	394	
Junior Members	5	
Family Members	2	
Subscribers	38	
Standing Orders	4	
	—	443
Total Membership		486

Changes of address and any corrections or additions should be notified to the Hon. Assistant Secretary, Mr W. R Price, 64 Elsworthy Road, N.W.3.

HONORARY GENERAL SECRETARY'S REPORT FOR 1946

The year 1946 witnessed a great and encouraging revival in the spirit and activities of the Society. The gradual return from wartime to more normal conditions and the consequent de-regimentation of many people's lives has made it possible to resume our pre-war activities. The Tea Party held in conjunction with the Annual General Meeting in March, and the programme of four Excursions arranged during the season (of which reports appear elsewhere) received excellent support, and fully justified the Committee's decision to resume these functions at the earliest opportunity. These events, together with the publication of the 1943-44 Report and the resumption of the Exchange Distribution, provided a stimulus which is clearly reflected in the considerable increase obtained in our membership during the year.

During this period a total of 55 new members joined the Society, 8 resigned or ceased to be members under Rule 6 (d), and we lost four by death. Thus our total membership (including all classes) at 31st December 1946 stood at 423, representing a net gain of 43.

We deeply regret having to record the death of the following:—Professor J. H. Priestley (in 1945), Mr Carleton Rea, Mr Andrew Templeman, and Major William Van de Weyer.

New members are:—Hon. Mrs G. Baring, Hon. Margaret Colville, Drs G. H. Bates, G. H. Hughes, H. Milne-Redhead and E. F. Warburg, Major E. Hensler, Mesdames Croker Fox, Boyd Watt and Whitwell, Misses Jean Allison, P. Barrett, W. M. A. Brooke, G. H. Day, G M. Ekins, D. M. Ellen, Joan Gibbons, K. M. Hollick, Anne Horsfall, B. Hurst, B. Kitson, M. Knox, D. M. Wethered, C. Wickham and A. F. Wood, Messrs F. V. Ambrose, H. E. Bannister, H. Bland, J. H. Burnett, F. L. Chesham, C. L. Collenette, G. W. Coxhead, R. Cumming, G. Grigson, F. W. Holder, W. Howell, A. Jones, C. Langridge, R. L. Lucas, A. G. Lyon, H. E. R. Mugridge, C. Pearson, O. V. Polunin, C. E. Raison, T. V. Roberts, G. A. Shaw, R. W. Sidwell, D. C. Slater, P. Taylor, T. G. Tutin, A. F. Twist, J. G. Vaughan, Carlisle Public Library, Museum and Art Gallery, Göteborgs Botaniska Trädgård, Southport Botanic Gardens Museum.

A very encouraging fact is the number of the younger generation (students, etc., under 30) in the above list of new members.

This is satisfactory progress, but continued effort is required to bring our membership up to a figure which will remove any possibility of future financial embarrassment hindering the Society in the achievement of its objects and in the performance of its activities. That figure is still a long way off, but its realization would be brought much nearer if (and this should be possible) every member introduced one new member to the Society. That the Society needs more publicity is appreciated by the Committee, and steps are being taken to remedy this defect. Even so, the best method of obtaining the additional members we require is by personal introduction, and it is hoped that members will respond to this appeal. The greater our membership, the greater the privileges and facilities which can be offered to members.

Communication with our Honorary Members in parts of Europe still remains difficult, but with the exception of Dr Kükenthal,* about whom there has been no news since the war, all have been contacted and have had volume XII of our Reports sent to them.

Several requests have been received, either direct or through The British Council, to exchange our publications with those of continental Universities and Institutions. The Committee has decided to pursue an active policy in this matter in order that our Reports shall have a wider circulation in various countries than they do at present.

The sales of Reports and other publications during the year have been greater than ever before, and have yielded a substantial revenue.

J. F. G. Chapple.

1st February 1947.

HONORARY TREASURER'S REPORT FOR 1946

The year 1946 has been noteworthy for the resumption of facilities which we were unable to offer to members during the war and preparations for extending and improving our other activities. These developments are reflected in the printed accounts.

In the General Fund it will be observed that the amount received from subscriptions has shown a welcome increase from £143 in 1945 and £116 in 1944 to £210 in 1946—a result largely attributable to improved membership. The sale of Reports and Reprints amounted to £69 as compared with £20 in 1945 and £17 in 1944 and our thanks are due to Mr Chapple, whom we were pleased to welcome back to his post as Honorary Secretary in March, for handling the despatch of publications.

The improvement in our income has, however, been more than offset by the very substantial increase in disbursements. The issue of the Report for 1943/4 cost £325, while the work of the several Sub-committees and the carrying out of some of their preliminary recommendations increased our postage bill to nearly £28 and Printing (other than Report) to £59—the heaviest figures in the history of the Society. A small loss on running the Tea-party (which is considered very well justified), and the expenses involved in carrying out the Excursion Programme, with other small items, brought the total disbursements for the year in the General Fund to £426—an excess of £138 over receipts.

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*Since this was written it has been learnt with pleasure that Dr Kükenthal is alive and well.

While the present balance of this Fund is as much as £485 it must be remembered that out of this we have to provide for the printing of the Reports for 1945 and 1946, since unfortunately it has not proved possible to bring our publications up to date during the year as had been intended. Moreover, the cost of printing has risen rapidly during recent months and may well increase still more. It is quite clear that the Society cannot continue to overspend income at the present rate and at the same time offer members larger and more frequent Reports and other facilities, and this is more especially the case as rising costs make it very difficult to budget for the future. I have therefore asked the Committee to recommend that the rate of subscription charged to Ordinary Members should be increased from 1st January 1948, and details of this and other proposed changes will be circulated later. In the meanwhile members may rest assured that the funds at present available are adequate to ensure an excellent return for their subscriptions during 1947. The balance standing to members' credit for subscriptions paid in advance amounted to £32 19s 8d on 31st December 1946, when we also held £1 6s 6d on account of an Honorary Member for publications to be ordered.

The Publications Fund has shown an increase of £55 during the year. This money is derived mainly from the sale of the *British Plant List* and *Comital Flora*, of which the remaining stocks are not large, and it is intended for the publication of fresh editions of these works when they can be prepared. It is already plain that much larger sums will be required for these purposes than was formerly thought necessary. The Life Members' Fund has increased during the year owing to four members having paid composition fees, but as the return on invested monies is so low it is considered advisable to recommend that no more such fees should be accepted until the position becomes clearer and less unprofitable from the point of view of the Society.

A part of Miss Trower's Fund has been expended for the purpose for which it was set up—the provision of illustrations for the Report, and there has been no call upon the Benevolent Fund.

My reports for the past five years have included a statement on membership, but, as the Hon. Secretary has now assumed responsibility for this part of the work, the pre-war practice of including it in his report will be resumed.

J. E. Lousley.

31st December 1946.

ACCOUNTS FOR THE YEAR 1946

GENERAL FUND.

To Balance from 1945 ...	£623 8 4	By Cheque Book		£0 10 0
,, Interest on Post Office Savings Bank Deposit for 1945	8 8 4	,, Gratuities at Meetings ...		2 10 0
,, Excursion Fees Received	0 12 6	,, Purchase of 13 Wooden Boxes for Storing Stock of Publications		2 18 6
,, Subscriptions Received ...	210 17 8	,, Loss on Tea-Party, 1946		2 10 3
,, Sales of Reports and Reprints	69 6 2	,, Printing (other than Report) and Stationery ...		59 6 11
		,, Postages and Petty Expenses :—		
		Hon. Secretary ...	£10 0 0	
		Hon. Treasurer ...	8 17 8	
		Hon. Secretary to Committee ...	5 0 0	
		Hon. Secretaries to Sub-Committees	4 0 0	
				27 17 8
		,, Honorarium to Caretaker at Yardley Lodge ...		1 1 0
		,, Fire Insurance on Books, etc., at Yardley Lodge ...		0 10 0
		,, Excursion Expenses ...		3 15 9
		,, Advertisement in Wild Flower Magazine ...		0 10 0
		,, Printing 1943-4 Report and Postage thereon ...		325 8 6
		,, Balance		485 14 5
	£912 13 0			£912 13 0

PUBLICATIONS FUND.

To Balance from 1945 ...	£240 10 5	To Balance	£295 13 8
,, Donation (R. Lewis, Esq.)	0 10 0		
,, Sales Fl. Northants ...	4 2 2		
,, Sales of Comital Flora and British Plant List ...	50 11 1		
	£295 13 8		£295 13 8

LIFE MEMBERS' FUND.

To Balance from 1945 ...		£191 8 11	By Balance	£225 0 11
,, Subscriptions compounded during the year :—				
Ordinary ...	21 0 0			
Exchange ...	12 12 0			
		33 12 0		
		£225 0 11		£225 0 11

MISS TROWER'S FUND.

To Balance from 1945 ...	£16 7 11	By 5 Half-tone Blocks in 1943-4 Report	£4 16 2
		,, Balance	11 11 9
	£16 7 11		£16 7 11

BENEVOLENT FUND.

To Balance from 1945 ...	£41 3 6	By Balance	£41 3 6
	£41 3 6		£41 3 6

BALANCE SHEET as at 31st December 1946.

General Fund	£485 14 5	500 National Savings Certificates at cost	£400 0 0
Publications Fund	295 13 8	Cash at Bank	210 15 9
Life Members' Fund	225 0 11	Deposit at Post Office Savings Bank	453 8 6
Miss Trower's Fund	11 11 9		
Benevolent Fund	41 3 6		
Cheque issued but not yet presented for payment ...	5 0 0		
	£1064 4 3		£1064 4 3

(Signed) J. E. LOUSLEY.
Hon. Treasurer.

Examined and found correct,
26th February 1947.

(Signed) H. W. PUGSLEY.
Hon. Auditor.

HONORARY EDITORS' REPORT FOR 1946

The reasons for the delay in the appearance of the Report for 1945 are given in that Report, which should be in members' hands before the Annual General Meeting.

The preparation of the Report for 1946 has been begun, and it is hoped that its publication will take place during the summer. Judging by the increased number of Plant Records received and papers of taxonomic interest submitted, it is evident that members are renewing their botanical activities after the years of dislocation. The study of changes observed in the vegetation of land now de-requisitioned from war-time occupation should recommend itself to those members living near such areas, and should provide material for interesting papers.

It has long been the Editors' aim to achieve publication of the Report in May. If this is to be achieved, papers and plant notes already prepared should be sent in as early as possible, so that the attention of the Editors in the New Year can be concentrated on work which cannot be done until then, such as checking the Plant Records, finishing the Abstracts from Literature and investigating the nomenclatural problems which arise. Early receipt of contributions in the autumn would greatly assist early publication of the Report.

A. J. Wilmott.
E. C. Wallace.

27th March 1947.

[The official information concerning 1947 will appear in a new publication—the Society's " Yearbook."]

The name of the Society was changed to The Botanical Society of the British Isles on 25th October 1947.

FUNCTIONS OF LOCAL SECRETARIES AND RECORDERS

PREAMBLE

While it is highly desirable that whenever possible the functions of Local Secretary and Recorder should be performed by one person, in practice this will not always be possible. The distinct functions are therefore here separately defined. It is felt that Local Secretaries and Recorders should not become the only, or even the usual, channels of communication between members on the one hand and the Officers, Referees, or Panel Members of the Society on the other. On the appointment of a Local Secretary or Recorder, he/she shall have the boundary of his/her area defined. Areas will where possible be on the basis of Watsonian vice-counties, but it may be found desirable to appoint either for a smaller area.

LOCAL SECRETARIES

1. To keep in touch with other local members and where possible and desirable to arrange meetings and excursions for their benefit.

2. To encourage the enrolment of new members.

3. To act as a centre for some botanical work of local bearing where they are qualified to do so.

4. To provide information to members of the Society from outside their areas, either by correspondence or otherwise, on travel facilities, accommodation, and botany. (This does not include supplying information about localities for rare plants, although statements as to their continued existence or frequency may be given for the purpose of scientific work.)

5. To keep in touch with local libraries, museums, and, especially, local herbaria and Natural History Societies, supplying information about them to other members, and particularly to the Panel, and also keeping the name of the Society before officials, officers, and members of local Societies.

6. To assist the Hon. Field Secretary and Leaders of excursions prior to and at the time of visits of the Society to their area.

7. To report without delay to the Secretary or Treasurer the death of any member living within their area.

8. To make regular visits to habitats of special interest within their areas so far as possible, and to report any threat which may call for conservation measures without delay to the Secretary of the Society.

RECORDERS

To assist the Editors by collecting records of more than local interest, checking records contributed for the Reports, and forwarding information about important changes in the flora.

LOCAL SECRETARIES AND RECORDERS

The following members have agreed to act as Local Secretaries (L.S.) and Recorders (R.) for the Vice-Counties indicated. Unless shown otherwise, these members have undertaken to combine the duties of the two offices, the nature of which is explained above.

Scilly Is.	J. E. Lousley (R.).
V.-c. 4.	F. A. Brokenshire.
6.	Mrs C. I. Sandwith.
7, 8.	J. D. Grose.
13.	Mrs P. German.
15.	F. Rose (R.).
16.	D. McClintock (L.S.). F. Rose (R.).
17.	J. E. Lousley.
21.	D. H. Kent.
23.	J. P. M. Brenan.
25.	Miss M. M. Whiting (L.S.).
26.	F. J. Bingley (L.S.).
27.	E. A. Ellis (R.).
28.	E. L. Swann (R.).
29.	S. M. Walters.
30, 31.	Dr J. G. Dony.
33.	C. C. Townsend (L.S.) W. R. Price (R.).
34.	W. R. Price (R.).
35.	A. E. Wade.
36.	F. M. Day (R.).
37.	Dr R. C. L. Burges (L.S.). F. M. Day (R.).
38.	Dr R. C. L. Burges.
39.	E. S. Edees.
41.	Miss E. Vachell.
42-52.	A. E. Wade (R.).
53, 54.	Miss E. J. Gibbons.
55.	F. A. Sowter (L.S.). Prof. T. G. Tutin (R.).
57.	Miss K. M. Hollick (L.S.). R. H. Hall (R.).
60.	A. Wilson (R.).
61, 63, 64.	Dr W. A. Sledge.
62, 65.	Miss C. M. Rob.
66.	D. H. Valentine (L.S.). G. W. Temperley (R.).
67, 68.	G. W. Temperley.
70.	Miss C. W. Muirhead (Carlisle Museum) (R.).
78-85.	Dr G. Taylor (R.).
87-89.	Miss M. S. Campbell.
90.	Miss U. K. Duncan (L.S.). Dr G. Taylor (R.).
105-109.	A. J. Wilmott (R.).
110.	Miss M. S. Campbell.

It is hoped to extend these arrangements to cover as much of the country as possible. Any member who is willing and able to carry out the duties of either Local Secretary or Recorder, or both, in any area not already covered, or who knows any person, whether a member of the Society or not, who might be suitable, is invited to communicate with the Hon. General Secretary.

PANEL OF SPECIALISTS

The Council is pleased to be able to announce the Panel of Specialists in accordance with Rule 19.

B.P.L. no.	CRITICAL SYSTEMATIC GROUPS:
2.	*Thalictrum* L. Dr R. W. Butcher.
6.	*Ranunculus* L. § *Batrachium*. Dr R. W. Butcher.
7.	*Caltha* L. Prof. A. R. Clapham.
32.	*Fumaria* L. N. Y. Sandwith.
35/1.	*Nasturtium* L. (excluding *Rorippa*). H. K. Airy Shaw.
45.	*Cochlearia* L. A. J. Wilmott.
64/3.	*Thlaspi alpestre* L. Prof. A. R. Clapham, A. J. Wilmott.
88.	*Viola* § *Nomimium*. Dr D. H. Valentine.
88.	*Viola* § *Melanium*. R. D. Meikle.
100.	*Cerastium* L. E. Milne-Redhead.
123.	*Tilia* L. H. A. Hyde.
128.	*Erodium* L'Hérit. Dr E. F. Warburg.
183.	*Prunus* L. Dr R. Melville, Dr E. F. Warburg.
185.	*Rubus* L. W. Watson, F. Rilstone (S. W. Peninsula).
190.	*Alchemilla* L. S. M. Walters, A. J. Wilmott.
194.	*Rosa* L. Dr R. Melville, N. Y. Sandwith.
195.	*Sorbus* L. Dr E. F. Warburg, A. J. Wilmott.
196.	*Crataegus* L. Dr E. F. Warburg.
199.	*Saxifraga* L. § *Robertsonia*. A. J. Wilmott.
199.	*Saxifraga* L. § *Dactyloides*. R. D. Meikle.
220.	*Epilobium* L. G. M. Ash.
247.	*Apium* L. R. D. Meikle.
296.	*Galium* L. (*palustre* L. and allies). Prof. A. R. Clapham.
383.	*Senecio* L. J. E. Lousley.
393.	*Arctium* L. Dr W. A. Sledge.
395.	*Carduus* L. Dr W. A. Sledge.
396.	*Cirsium* Mill. Dr W. A. Sledge.
405.	*Centaurea* L. E. Marsden-Jones.
423.	*Taraxacum* Weber ex Wigg. A. J. Wilmott.
457.	*Limonium* Mill. A. J. Wilmott.
478.	*Centaurium* Hill. J. S. L. Gilmour.
480.	*Gentiana* L. J. E. Lousley.
497.	*Symphytum* L. A. E. Wade.
506.	*Myosotis* L. A. E. Wade.
527.	*Verbascum* L. J. E. Lousley.
545.	*Euphrasia* L. Dr E. F. Warburg.
548.	*Rhinanthus* L. A. J. Wilmott.
558.	*Mentha* L. R. Graham.

561. *Thymus* L. A. J. Wilmott.
596. *Amaranthus* L. J. P. M. Brenan, N. Y. Sandwith.
600. *Chenopodium* L. J. P. M. Brenan.
611. *Salicornia* L. Miss M. S. Campbell, A. J. Wilmott.
615. *Rumex* L. J. E. Lousley.
633. *Ulmus* L. Dr R. Melville.
642. *Betula* L. Dr E. F. Warburg, A. J. Wilmott.
650. *Salix* L. R. D. Meikle, Dr R. Melville, A. J. Wilmott.
651. *Populus* L. P. G. Beak, Dr R. Melville.
668. *Epipactis* Adans. V. S. Summerhayes, C. P. Thomas, Dr D. P. Young.
669. *Orchis* L. V. S. Summerhayes, A. J. Wilmott.
718. *Juncus* L. Dr P. W. Richards.
737. *Potamogeton* L. J. E. Dandy, Dr G. Taylor.
740. *Zostera* L. Prof. T. G. Tutin.
745. *Heleocharis* R. Br. S. M. Walters.
753. *Carex* L. E. Nelmes, E. C. Wallace, A. J. Wilmott.
754→ *Gramineae.* C. E. Hubbard
780. *Agrostis* L. W. R. Philipson.
826. *Festuca* L. Dr W. O. Howarth.
830. *Agropyron* Gaertn. Prof. T. G. Tutin.
844→ *Pteridophyta.* A. H. G. Alston.
872→ *Charophyta.* G. O. Allen.

NOTE.—The specialists' names in the above list are given in *alphabetical* order when two or more are available for consultation.

Unlike the last Panel of Referees (*B.E.C. Rep. 1936*, 639-646: 1938) this list includes only critical groups. Members may send their specimens direct to the specialist indicated, together with a stamped addressed envelope for reply. If the specimens submitted are required to be returned the necessary postage should be forwarded. Addresses as in this Report.

Non-critical plants for identification should be sent to the Hon. General Secretary. It may not be possible to undertake to name plants of critical groups not covered by the above list.

It should be understood that the specialist is not necessarily prepared to name all specimens submitted. In some cases the specialist indicated may not yet have attained sufficient knowledge of the group he is studying. In other cases the material submitted may be incomplete, lacking adequate data or badly prepared. All the specialists will, however, do the best they can to identify plants submitted by members.

Unless it is reasonably certain that specimens will arrive in good fresh condition, they should be sent flat in paper between stiff millboards to prevent shrivelling. Dried pressed specimens may be sent similarly. Specimens should be carefully labelled with locality, habitat, date and any other notes likely to be of use. Whenever possible specimens should be submitted in duplicate, so that the specialist may retain one specimen if he so desires. If only one specimen of a gathering is submitted it should be clearly stated whether its return is desired.

Any member who is studying a critical group and would like his name added to the Panel should forward particulars to the Hon. General Secretary for consideration by the Council.

MISCELLANEOUS SUBJECTS:

Nomenclature: J. E. Dandy and A. J. Wilmott.
Local Floras: N. Douglas Simpson.
Vice-County Boundaries: J. E. Dandy.
Maps: E. Milne-Redhead.
Systematic Works and Monographs: N. Y. Sandwith.
Foreign Floras and Foreign Field Work: A. H. G. Alston.
Botanical Apparatus and Material: to be announced later.
Preparation of Botanical Specimens: E. Milne-Redhead.
Location of Private Herbaria: A. J. Wilmott.
Plant Conservation and Nature Reserves: A. J. Wilmott.
History of British Botany, before Linnaeus: Rev. Prof. C. E. Raven.
History of British Botany, Linnaeus and after: J. S. L. Gilmour.
Ecology: Prof. A. R. Clapham.
Genetics in Relation to Systematics: Dr D. H. Valentine.
Cytology in Relation to Systematics: Dr E. F. Warburg.
Economic Uses of British Plants: Dr R. Melville.
Phenology and Meteorology: E. Nelmes.
Folk Lore and Popular Names: Miss M. S. Campbell.

Members wishing to avail themselves of the privilege of consulting the specialists in the list, should write to them direct and enclose a stamped addressed envelope for reply. (Addresses as in this Report).

EXCHANGE REGULATIONS

[As amended and agreed by the Council, 1948]

A. *Regulations affecting the Distributor.*

1. The Distributor shall be appointed annually by the Council on the recommendation of the Hon. General Secretary. Members shall be notified, not later than 1st August, of the name and address of the Distributor for the ensuing year.
2. The Distributor should submit gatherings of critical species to the Society's Referees for comment. Normally the whole gathering, and not selected sheets, should be submitted.
3. The Distributor shall stamp with the Society's stamp, showing the year of distribution, all labels of plants distributed.
4. The Distributor shall reserve one sheet of every gathering for each of the following Institutions:—

   The Herbarium of the British Museum (Nat. Hist.).
   The Herbarium, Royal Botanic Gardens, Kew.
   The Claridge Druce Herbarium, Oxford University.
5. The Distributor shall make up return parcels according to the merit of the parcels received from contributing members. These should be despatched to contributors not later than 1st April, and earlier if possible, and one month shall be allowed to recipients for submitting notes for the Distributor's Report.
6. The Distributor will compile the "Distributor's Report," including a list of the plants distributed, together with such notes as he thinks desirable.
7. In the event of rare plants being sent in contrary to Regulation B.1, they shall not be distributed, and the Distributor shall report the matter to the Council through the Hon. General Secretary.
8. The Distributor shall dispose of surplus material in consultation with the Hon. General Secretary. It should normally be sent to Institutions.
9. The Distributor should keep an account of his expenses for postages, etc., and shall send the account to the Hon. Treasurer for reimbursement from the funds of the Society.

B. *Regulations affecting Members.*

1. Members shall contribute dried specimens of plants only of critical or special interest, or those specially requested. Under no circumstances shall plants which have no interest other than rarity be submitted for exchange, and in no instance should a collection be made which is likely to endanger the existence or seriously diminish the quantity of the plant in the locality concerned.

2. Members should not submit indiscriminate gatherings of critical plants, but should take steps to ascertain from the Referees, or otherwise, that a gathering would be of real value for distribution.
3. Only well dried and well selected specimens should be sent in; the specimens should not exceed 18 ins. by 11 ins. in size, and should be unmounted; badly prepared specimens may not be distributed.
4. Normally, not less than 10 sheets of each gathering shall be sent, and it is suggested that 20 sheets is a desirable number at which to aim for a gathering.
5. Appropriate labels should be sent with each gathering. The labels should contain the following information:—

   Name of the species.
   Vice-county (name and number), locality and habitat.
   Date of collection and relevant notes.
   Name of collector and his reference number, if any.

   One label should be sent for each sheet of the gathering, and one additional label for each gathering. All the labels for each gathering should be placed together in an envelope and not placed singly with the sheets.
6. Members are entitled to demand the return of any sheets they have marked for their own use. They may also indicate which sheets should be reserved under Regulation A.4.
7. It is essential that members who contribute should inform the Distributor of their special needs and requirements.
8. Members are invited to send in gatherings for distribution, even though they do not wish to receive any specimens in return.

EXCURSIONS, 1946

JUNE 14-17, BRECON.

Leader: Miss E. Vachell.

Friday, June 14.

About 22 members and friends arrived in Brecon in readiness to carry out the rather strenuous programme that had been arranged for the two following days.

The members taking part were: Miss L. Abell, Rev. R. B. Abell, Mr H. K. Airy Shaw, Commander Graham, Miss Hurst, Miss Longfield, Miss Marsh, Mr E. Milne-Redhead, Mrs M. Milvain, Dr Morgan, Mr N. D. Simpson, Miss Swaine, Mr A. E. Wade, Hon. Mr Waldy, Mr W. Watson, Dr C. West, Mr J. E. Woodhead and Miss E. Vachell (Leader). Also present were Mr T. S. Jones who brought two friends on one of the expeditions, Miss Wickham and Miss Wight. At the very last moment Mr H. W. Pugsley fell ill and was unable to attend, and Mr E. Nelmes and his brother were prevented from coming in their car but were represented by Mr D. Dawson.

Difficulties of all sorts had been encountered by the leader in arranging the Excursion, and as it was the first to be held since 1939 considerable pleasure was expressed by those present at the resumption of botanical activities after seven years of war.

Saturday, June 15.

An early start was made to Craig-y-Cilau.

Before proceeding far along the slippery rain-soaked path under the cliffs three *Sorbus* species had been seen as well as good examples of *Tilia cordata* and *T. platyphyllos*; *Pinguicula vulgaris* and *Hutchinsia* had been duly admired growing on the face of the rock and *Asplenium viride*, and *Cystopteris fragilis* had been noticed in abundance in the crevices. *Melica nutans* and *M. uniflora* were growing together, looking very attractive.

It was decided to descend the screes at the end of the cliff track near a clump of *Polygonatum officinale* and to return by the side of the marsh where interesting plants were known to occur.

The marsh was then examined and yielded quantities of *Drosera*, *Pinguicula*, Carices and other fascinating species, and in excellent time the cars were rejoined and the members made their way to the little baker's shop in Crickhowell where a delicious tea awaited them.

Mr T. V. Jones of Brecon who knew the district well then led those members of the party who desired to work Llangorse Lake along narrow winding roads to a spot near Llangasty Tal-y-llyn church where the lake margin could be easily reached and the marsh plants examined. Marsh Marigold plants were carefully examined to see if any of them were *C. radicans* which they certainly were not, a Marsh Orchis was gathered for Dr P. Vermeulen of Amsterdam who had asked Miss Vachell for Welsh specimens, and *Nymphoides* and *Polygonum amphibium* var. *glandulosum*, *Rorippa palustris*, etc., were noticed. *Littorella uniflora* and *Scirpus palustris* were abundant near the water's edge.

Mr Airy Shaw and Mr Milne-Redhead who had stopped to examine a marsh a short way away brought back specimens of *Catabrosa aquatica*.

Passing a mass of *Geranium pyrenaicum* by the roadside the cars made their way back to Brecon, and in the evening all members assembled in the ballroom of the Wellington Hotel, which had been placed at the Society's disposal, to press their plants and discuss the finds of the day.

SUNDAY, JUNE 16.

At 10 o'clock a start was made in the motor coach for Penderyn where the party was to be met at 10.45 by Mr Price of Mountain Ash, who had promised at Dr North's request to lead the party in the Vale of Neath. Alas, the road over the Brecon Beacons, usually so very lovely, was not looking its best, for rain blotted out the view, but we set off across the moor, slithered down the steep gorge to Scwd-yr-eira and searched for plants under the waterfall where it was not much wetter under the spray than it was elsewhere.

Then back to the bus when the party set off to the nearest spot to Port-yr-Ogof, a grim limestone cave where the water passes underground. The surrounding rocks and banks are covered with vegetation but the weather was not conducive to unnecessary struggles with the thick undergrowth and botanising was not easy.

Owing to tree-felling operations which Mr Price discovered by kindly going over the ground a few days before, it was necessary to alter the programme somewhat as it was impossible to walk as usual from one place to another along the river bed.

The bus was then rejoined and when Penderyn was again reached a delicious tea awaited the party at the Lamb Inn and a roaring fire had been prepared by Mrs Richards at which turns were taken to dry wet clothes.

After tea the party set off in the bus for Brecon and met together once more in the ballroom of the Wellington Hotel after dinner.

They were joined by Mr Jones of Brecon who had much enjoyed the expedition and wanted the Leader to interview a representative of the local press!

MONDAY, JUNE 17.

Mr Wade, Mr Dawson, Miss Marsh, Miss Wight, Miss Swayne and Dr West left for home and three cars containing Hon. Mrs Waldy, Miss Hurst, Commander Graham, Miss Wickham, Rev. A. B. Abell, Miss Abell, Mr Watson, Mr Woodhead, Miss Longfield, and Miss E. Vachell made their way to Craig Cerig Gleisiad where a most enjoyable morning was spent examining the plants on the rock ledges, including *Saxifraga oppositifolia*, *Geum rivale*, *Luzula sylvatica*, *Asplenium viride*, etc., etc.

In the afternoon Miss Vachell undertook to lead Rev. A. B. and Miss Abell, Mr Woodhead and Mr Watson to the banks of the Wye near Erwood to show them *Thalictrum expansum*, where it was duly located and the Island covered with Chives also examined. Miss Abell found a *Scrophularia* which appears to be *S. nodosa* var. *Bobartii* in a roadside quarry.

E. VACHELL.

LIST OF PLANTS OBSERVED:

Craig-y-Cilau.

37/1.	*Arabis hirsuta* (L.) Scop.
39/4.	*Cardamine flexuosa* With.
67/1.	*Hutchinsia petraea* R. Br.
103/8.	*Sagina apetala* Ard.
109/2.	*Montia verna* Neck.
123/1.	*Tilia platyphyllos* Scop.
123/3.	*Tilia cordata* Mill.
127/13.	*Geranium lucidum* L.
155/22.	*Trifolium filiforme* L.
185/154.	*Rubus saxatilis* L.
190/8.	*Alchemilla glabra* Neyg.
195/8.	*Sorbus anglica* Hedl.
195/10.	*Sorbus porrigens* Hedl.
195/12.	*Sorbus minima* (Ley) Hedl.
199/10.	*Saxifraga hypnoides* L.
199/20.	*Saxifraga tridactylites* L.
225/1.	*Circaea lutetiana* L.
277/2b.	*Heracleum Sphondylium* L. var. *angustifolium* Huds.
284/1b.	*Hedera Helix* L. var. *borealis* Druce.
419/154(2).	*Hieracium cillense* Pugsl.
423/.	*Taraxacum erythrospermum* Andrz. ex Bess., agg.
425/4.	*Lactuca muralis* (L.) Gaertn.
541/1b.	*Digitalis purpurea* L. var. *nudicaulis* Saunders.
545/9.	*Euphrasia curta* (Fr.) Wettst.
553/2.	*Pinguicula vulgaris* L.
669/14.	*Orchis mascula* L.
691/3.	*Polygonatum officinale* All.
753/20(2).	*Carex tumidicarpa* Anderss.
794/2.	*Avena pubescens* Huds.
818/1.	*Melica nutans* L.
818/2.	*Melica uniflora* Retz.
851/2.	*Asplenium Trichomanes* L.
851/3.	*Asplenium viride* Huds.
856/8.	*Dryopteris Thelypteris* (L.) A. Gray.
856/11.	*Dryopteris Robertiana* (Hoffm.) C. Chr.
857/4.	*Cystopteris fragilis* (L.) Bernh.

Bog below Craig-y-Cilau.

213/3. *Drosera rotundifolia* L.
737/2. *Potamogeton polygonifolius* Pourr.
753/56. *Carex stellulata* Good.

Environs of Llangorse Lake and Llangasty-Tal-y-llyn.

*35/1(2). *Nasturtium microphyllum* Boenningh. ex Reichb. (*uniseriatum* Howard et Manton).
35/4. *Rorippa islandica* (Cr.) Bess.
127/7. *Geranium pyrenaicum* Burm. f.
184/11. *Spiraea Ulmaria* L., glabrous form.
189/3. *Potentilla Anserina* L. var. *sericea* Koch.
189/7. *Potentilla reptans* L. var. *microphylla* Trott.
220/10. *Epilobium montanum* L. (large white flowers).
482/1. *Nymphoides peltatum* (S. G. Gmel.) Britt. & Rend.
543/8. *Veronica Anagallis-aquatica* L.
589/1. *Littorella uniflora* (L.) Asch.
615/5c. *Polygonum amphibium* L. var. *glandulosum* Schönheit.
*628/2. *Euphorbia dulcis* L.
669/7. *Orchis latifolia* L. sec. Pugsl.
669/10. *Orchis ericetorum* (Linton) E. S. Marshall.
676/1b. *Iris Pseudacorus* L. var. *acoriformis* (Bor.) Baker.
753/4. *Carex vesicaria* L.
753/9c. *Carex hirta* L. var. *hirtiformis* Pers.
753/66. *Carex disticha* Huds.
*814/1. *Catabrosa aquatica* (L.) Beauv. Wern-ddu, Cathedine.

Penderyn and Scwd-yr-eira, river Hepste.

6/31. *Ranunculus Lenormandi* F. Schultz.
35/1. *Nasturtium officinale* R. Br.
545/19c. *Euphrasia Rostkoviana* Hayne var. *obscura* Pugsl.
753/21. *Carex lepidocarpa* Tausch.
*753/59. *Carex Otrubae* Podp.
824/6b. *Poa trivialis* L. var. *glabra* Doell.
825/3(2). *Glyceria declinata* Bréb.
851/3. *Asplenium viride* L.
854/3. *Polystichum lobatum* (Huds.) Woynar var. *cambricum* (S. F. Gray).
857/4. *Cystopteris Filix-fragilis* (L.) Bernh.

Ystradfellte: Porth-yr-Ogof, river Mellte.

6/32. *Ranunculus hederaceus* L.
31/1. *Corydalis claviculata* (L.) DC.
190/2. *Alchemilla xanthochlora* Rothm.
190/8. *Alchemilla glabra* Neyg.
298/1. *Asperula odorata* L.
301/3. *Valeriana dioica* L.

326/1.	*Antennaria dioica* (L.) Gaertn.
545/3.	*Euphrasia brevipila* Burnat & Gremli.
545/19.	*Euphrasia Rostkoviana* Hayne.
702/6.	*Allium ursinum* L.
719/4.	*Luzula multiflora* (Retz.) DC. var. *congesta* (Thuill.) Koch.
753/20(2).	*Carex tumidicarpa* Anderss.
753/32.	*Carex pilulifera* L.
753/57.	*Carex remota* L.
834/1.	*Nardus stricta* L.
854/3.	*Polystichum lobatum* (Huds.) Woynar var. *cambricum* (S. F. Gray).

Craig Cerig Gleisiad.

2/2(4).	*Thalictrum collinum* Wallr.
187/2.	*Geum rivale* L.
199/2.	*Saxifraga oppositifolia* L.
199/3.	*Saxifraga sponhemica* Gmel.
719/1.	*Luzula sylvatica* (Huds.) Gaud.
844/6.	*Equisetum palustre* L.
851/3.	*Asplenium viride* L.
856/1(2).	*Dryopteris Borreri* Newm.
856/7.	*Dryopteris Oreopteris* (Ehrh.) Maxon.
856/9.	*Dryopteris Phegopteris* (L.) C. Chr.

River Wye, between Erwood and Builth.

2/2(9).	*Thalictrum expansum* Jord.
37/1.	*Arabis hirsuta* (L.) Scop.
54/4d.	*Brassica Rapa* L. var. *Briggsii* Wats.
178/25.	*Lathyrus montanus* Bernh.
535/4b.	*Scrophularia nodosa* L. var. *Bobartii* Pryor.
702/7.	*Allium Schoenoprasum* L.

Head of Dyffryn Crawnon.

11/1.	*Aquilegia vulgaris* L.
419/96.	*Hieracium pellucidum* Laest.
419/106.	*Hieracium sanguineum* (Ley) W. R. Linton.
856/1(2).	*Dryopteris Borreri* Newm.

Brecon and Crickhowell.

651/3b.	*Populus nigra* L. var. *betulifolia* Torr.

JUNE 22-29, PITLOCHRY, PERTHSHIRE.

Leader: Miss M. S. CAMPBELL, assisted by Mr A. J. WILMOTT.

This excursion was arranged for the purpose of making an extensive botanical survey of the country surrounding Loch Tummel included in the North of Scotland Hydro-Electric Board's Tummel-Garry scheme. In addition, visits to the Moor of Rannoch and to Ben-y-Vrackie were included in the programme.

The following members took part:—Miss Duncan, Mrs Evetts, Miss Kitson, Miss Knox, Mrs Phelps, Miss Vivian, and Messrs Alston, Wilmott, Simpson, and they were joined by Dr Fraser from The Macaulay Institute of Soil Research and his son, Mr Hermon (Resident Engineer, North of Scotland Hydro-Electric Board, Miss Ramsay (a Perthshire member of the W.F.S.), Miss Drew, and Miss Thompson.

It was not possible for all members to be accommodated in the same hotel, though all except the Leaders were in Pitlochry. In spite of many difficulties over transport the full programme was carried out. Details are as follows:—

In its main aim—the study of *Schoenus ferrugineus* and its habitat with a view to its preservation when the level of Loch Tummel is raised by the Tummel-Garry scheme—the Pitlochry excursion did all that could be expected. The plant was found to extend westward on the north shore of the loch for about a mile west of the well-known station just west of the Borenich Burn, and an isolated plant was found by Messrs Alston and Simpson further east under the hill where the river Tummel flows out of the loch. Subsequently the plant was found to extend for about half a mile on the opposite (south) side of the loch to the east of Loch Tummel Lodge, where it had been found many years previously by Miss Campbell, who had gone to the south bank in error!

The Borenich habitat was examined on the 27th by Dr Fraser, who, with two helpers, came specially from Aberdeen to take samples and report on the soil.

It is proposed to publish a separate account of *Schoenus ferrugineus* in Britain, which will include Dr Fraser's analysis of the soil on which it grows and also details concerning such transplants as have been made.

One evening the party had the pleasure of meeting the Board's Biologist (Dr Berry) and the Resident Engineer to the Scheme and heard from them the aims and work of the Board. Dr Berry stated that although his main work is connected with the prevention of all avoidable damage to the fish, his duties included similar prevention of damage to other forms of life. He had the full co-operation of the Board, and had, two years previously, taken preliminary steps concerning the *Schoenus*. (Specimens were taken by Mr R. M. Adam to the Royal Botanic Garden, Edinburgh, but did not, however, survive.) In May 1945 plants had been removed to two places by a small lochan (at a higher altitude than Loch Tummel) near Fincastle, the residence of the late Dr Barbour, who had given the Falls of Tummel to the National Trust for Scotland. Mr Wilmott, after visiting the Borenich habitat with Mrs Barbour in March 1946, discussed with her the creating of a habitat where the *Schoenus* might possibly survive long enough to be available for replanting by the raised Loch Tummel. Even if unsuccessful, observations of this transplant experiment may throw light on the requirements of the plant.

Mr Hermon expressed willingness to do anything possible, even to the use of a bulldozer to carve out a new site above the existing one (17 ft. above the present level of the loch). It remains for a suitable site to be found based on the study of the present habitats. Detailed observations were made and the results of the examination of the soil samples are awaited with interest.

In addition to the meeting with Dr Berry two evening meetings were held in the Pitlochry Institute, at which informal discussion of the field work as well as of matters of a more general interest, including the Society's recent Questionnaire to members, took place.

JUNE 22.

Walk to the Falls of Tummel. Nothing of special interest was seen. Quantities of *Melampyrum* near the Falls all proved to be *M. pratense* var. *ericetorum*. A maculate-leaved form of *Taraxacum spectabile sensu lato* was collected by the river. *Pyrola minor* was seen near Cluny Bridge. In Pitlochry several members saw *Poa Chaixi* running wild in a garden bordering the main road.

JUNE 23.

The party went by train to Blair Atholl and walked in Glen Tilt. Some of the more interesting plants observed were:—*Geranium pyrenaicum*, *Vicia sylvatica* (form with white flowers, veins inconspicuous). *Alchemilla pseudo-minor*, *Parnassia palustris*, *Circaea alpina*, *Myosotis versicolor* var. *dubia*, *Euphrasia brevipila* f. *gracilior*, *Convallaria majalis*, *Milium effusum* and *Festuca sylvatica*.

JUNE 24.

The Borenich habitat of *Schoenus ferrugineus* was visited and the party divided up to determine its extent along the shore. A list was made of associated plants and contained nothing unusual. It included a seedling Ash, some *Scirpus pauciflorus* and *Festuca capillata*. *Viola canina* (*ericetorum*) and a *Thalictrum* (not flowering) were in the neighbouring damp meadows with *Trollius*, *Carex pallescens* and, between Borenich Farm and the loch, *Orchis purpurella* and hybrids with *O. ericetorum*. *Raphanus Raphanistrum* var. *aureus* occurred in an arable field in which *Trifolium hybridum* was collected. *Carex lasiocarpa* was noted at the east end of the Loch.

At the western end of the Loch, *Calamagrostis neglecta* was found to be plentiful over a zone of wet marsh included in the area for flooding. *Carex rostrata* and *C. vesicaria* were seen growing together, and a fine form of *Cardamine pratensis* with large and deeply-coloured flowers. *Eriophorum latifolium* and *Carex canescens* in the very wet marsh where the river enters the loch were found by the party working from the boat. *Lysimachia vulgaris* (shade form) and *Carex remota* were growing in the wooded verge of the loch.

JUNE 25.

Most members of the party ascended Ben-y-Vrackie with Miss Drew in charge. The *Oxytropis* was in flower on the rocks only. No flower was seen on *Carex rupestris*. (Has anyone ever seen it flowering here?) *Claytonia alsinoides* was in the wood on the way up and *Ribes alpinum* in the glen. *Anemone nemorosa* was still in flower on the rocks.

Members not going to Ben-y-Vrackie visited the west bank of the Tummel below Pitlochry and near Dunfallande House found a handsome *Rubus* with the terminal flowers 7-petalled, and on the flood bank *Polygonum Bistorta* and hybrids between *Orchis Fuchsii* and *O. purpurella*.

JUNE 26.

The party set out by private bus to Loch Rannoch, travelling by way of Dunalaister, where a stop was made at the salmon ladder of the Grampian Electric Supply Co. A *Thalictrum* and *Hieracia* were collected on riverside rocks and a wood of *Pinus sylvestris* var. *scotica* noted on the slope.

The south side of Loch Rannoch was selected for the outward journey and a part of the Black Wood was searched for *Corallorhiza* without success. Miss Duncan found *Carex irrigua* and *C. laevigata*. *Meum* was seen at Bridge of Gaur.

No unknown locality for *Scheuchzeria* was seen on Rannoch Moor, where a heavy shower of rain was encountered. *Erophila verna* was seen at Rannoch Station, and by Loch Laidon a *Nymphaea* (? *occidentalis*) was growing with rhizomes exposed on the bare mud.

Returning by the North shore of L. Rannoch, a stop was made near Killichonan, where an *Isoetes* was found washed up and *Subularia aquatica* and *Arabidopsis Thaliana* were seen on the shore. A meadow contained abundant *Meum*, *Viola ericetorum*, *V. Riviniana* and a hybrid. Nearby Miss Campbell collected a series of *Valeriana officinalis* ranging from gross plants three feet high with broad leaflets to small plants which would seem to fit " *V. angustifolia* " as distinguished by Drabble, and *Barbarea intermedia*.

After tea at Loch Rannoch Hotel the *Thalictrum umbrosum* was examined at the east end of Loch Rannoch.

JUNE 27.

Some of the party revisited the Borenich habitat to meet Dr Fraser and party from Aberdeen together with Mr Hermon, and to explore the possibilities for preserving the *Schoenus* close to its present station.

Later some of the party went to the south shore of Loch Tummel and found the *Schoenus* almost opposite Borenich, as already stated.

JUNE 28.

Glen Errochy, where a new loch is to be created as part of the Tummel-Garry scheme, was visited. On the way a stop was made at the Falls of Bruar. A fine plant of *Verbascum Thapsus* was noted by the falls and planted *Sorbus Aria* near the road. *Senecio sylvaticus* was abundant on the hillside. Other finds of interest were *Teesdalia nudicaulis*, a small *Viola* apparently *V. lepida*, *Genista anglica*, *Pyrola media*, *Veronica officinalis* with crimson-tipped flowers and *Poa nemoralis*. The next stop was at Struan, where *Melampyrum sylvaticum* was in fine flower by the salmon leap.

In Glen Errochy *Bromus lepidus*, *B. hordeaceus* and *Phleum nodosum* were growing together in a hay meadow. Further on a stop was made at a bank coloured with *Gymnadenia conopsea* and *Orchis ericetorum*, but no hybrids were found. Nearby a few spikes of *Gymnadenia albida* were noted coming into flower.

Above Trinafour the bridge bore *Asplenium Trichomanes*, *A. viride*, *Cystopteris fragilis* and *Arabis hirsuta*, and nearby were *Mimulus guttatus* and *M. moschatus*. On the moorland above were *Dryopteris Oreopteris* by a burn, *Tofieldia* in a wet *Carex panicea* flush, *Helianthemum Chamaecistus* on a grassy hillside and *Eriophorum latifolium* in a bog by the river.

June 29.

Ballinluig Island in the Tummel was visited in the morning. On the banks of the Tummel *Cardamine amara*, *Circaea alpina*, and *Carex remota* were seen. On the Island *Dianthus deltoides* was spotted by Miss Duncan some distance from its old station. Other interesting plants noted were *Meconopsis cambrica*, *Papaver nudicaule*, *Teesdalia nudicaulis* in plenty, a hybrid between *Silene Cucubalus* and *S. maritima* on the shingles, *Cerastium arvense*, *Arenaria trinervia*, *Ononis arvensis*, ×*Geum intermedium*, *Saxifraga aizoides*, *S. stellaris*, *Filago minima*, *Gentiana campestris*, *Symphytum officinale*, *S. peregrinum* and a welter of hybrid colour forms, *Thymus neglectus* and *Scleranthus annuus*. Some *Polygala oxyptera* with blue, red, pink and white flowers attracted attention.

The excursion ended in the early afternoon.

There appear to be five new vice-county records amongst the material so far determined. These were:—*Meconopsis cambrica* (88: wet shade by R. Tummel opposite Ballinluig Island, M. S. Campbell and A. J. Wilmott, 29th); *Barbarea intermedia* (88: 26th, as above); *Viola segetalis* (89: near Pitlochry, Mrs Evetts, det. A. J. Wilmott, 21st); *Hieracium brunneocroceum* (89: Pitlochry, near the church, A. J. Wilmott, 22nd); *Bromus lepidus* (88: A. J. Wilmott, 28th, as above). *Poa Chaixii* (89: Pitlochry, N. D. Simpson, 21st) is an addition to *C.F.* but not a new v.-c. Record, see White (*Fl. Perthsh.*, 353, 1898).

It is hoped to publish further information relating to the fate of *Schoenus ferrugineus*.

The Leader wishes to thank the following for their kind co-operation: The Hon. Mrs Barbour, Dr Berry, Miss Jean Drew, Dr Fraser, Mr Hermon and the owners of the various properties visited.

M. S. CAMPBELL.

JULY 19-22, BEDFORD AND DISTRICT.

Leader: Dr J. G. Dony.

The excursion to Bedford which was blessed with one of the few fine week-ends of the 1946 summer was attended by the following members: Miss I. J. Allison, Mr F. V. Ambrose (July 19th-20th only), Miss W. M. A. Brooke, Miss G. H. Day, Mrs B. Hassall, Lady Roche, Miss C. Vivian, The Hon. Mrs H. P. Waldy, Mrs B. Welch, H. K. Airy Shaw, J. P. M. Brenan, R. C. L. Burges (20th only), J. F. G. Chapple, C. L. Collenette, J. G. Dony, J. S. Holland, R. Lucas, E. Milne-Redhead, R. Melville, N. D. Simpson, N. Y. Sandwith, P. Taylor, D. P. Young and seven friends of whom Mrs B. Garrett has since joined the society. Its main objects, which were explained on the Friday evening, were to visit some of the local Bedfordshire plants and to study some of the less worked river drainage districts in search of records as a contribution to a new Bedfordshire Flora being prepared by the leader. Where the finder of plants is known his name is inserted. New county records of plants listed in the *Comital Flora* are as usual indicated by *, species not native in the locality in which they were found are indicated † unless they are new to v.-c. 30 and are not included in the *Comital Flora* in which case they are indicated ‡. Where critical plants are concerned the name of the person, if other than the finder, responsible for the determination is added, except for the following: *Epilobia* determined by G. M. Ash and Grasses determined by C. E. Hubbard.

SATURDAY, JULY 20.

On Saturday morning a start was made in the Ouse district in the examination of some gravel pits at Eaton Socon. These are rich in wool aliens and among the more interesting plants seen were †*Viola Deseglisei* Bor., N. D. Simpson, †*Geranium rotundifolium* L., †*Erodium moschatum* (L.) Ait., †*Medicago hispida* Gaertn. var. *denticulata* (Willd.), ‡var. *apiculata* (Willd.), D. P. Young, †*M. arabica* (L.) Huds., †*M. minima* (L.) Bartal. var. *recta* (Desf.) Burnat, †*Melilotus indica* (L.) All., †*Trifolium subterraneum* L., **T. glomeratum* L., E. Milne-Redhead, †*T. angustifolium* L., found independently by a number of members, *Lotus tenuis* Willd., ‡*Vicia dasycarpa* Tenore, H. K. Airy Shaw, †*Acaena anserinifolia* (J. R. & G. Forst.) Druce, ‡*Myriophyllum verrucosum* Lindl. (see paper by J. P. M. Brenan and J. F. G. Chapple), ‡*Ammi majus* L., J. P. M. Brenan, †*Carduus tenuiflorus* Curt., ‡*Centaurea melitensis* L. det. R. C. L. Burges, J. G. Dony and P. Taylor. †*Juncus Gerardi* Lois., †*J. tenuis* Willd., †*Polypogon monspeliensis* (L.) Desf. and ‡*Bromus tectorum* L. (det. as var. *longipilus* Borbas by C. E. Hubbard), J. P. M. Brenan. The Australian rushes seen in the pits include †*Juncus pallidus* R. Br. and †*J. vaginatus* R. Br., and other species still to be determined. Members who joined the excursion will be interested to know that Mr Ash has since visited the pits and named the willow-herbs there as *Epilobium hirsutum* L., *E. parviflorum*

Schreb., †*E. adenocaulon* Hausskn., *E. tetragonum* L. sec. Curt., and *E. Lamyi* F. Schult., with the following hybrids: ‡*E. hirsutum* × *Lamyi*, ‡*E. hirsutum* × *parviflorum*, ‡*E. hirsutum* × *tetragonum*, ‡*E. adenocaulon* × *hirsutum*, ‡*E. adenocaulon* × *parviflorum*, ‡*E. Lamyi* × *parviflorum* and ‡*E. Lamyi* × *tetragonum*.

It was with some regret that the gravel pits were left and after lunch at St Neots the party travelled to the north of the county stopping to look at *Ornithogalum pyrenaicum* L. and *Melampyrum cristatum* L. on the way. The attention of the members was also drawn by Dr Melville to a coppiced wood consisting almost entirely of *Ulmus glabra* × *Plotii*—an unusual occurrence. The party later divided, one section to make a study of West Wood in the Kym district and the other to visit a railway cutting at Wymington in the Nene district.

West Wood—a boulder clay wood typical of this neighbourhood—revealed new district records with *Rosa stylosa* Desf. var. *systyla* (Bast.) Baker, N. Y. Sandwith, *R. canina* L. var. *fraxinoides* (H. Br.) W. Dod f. *recognita* (Rouy) W. Dod. N. Y. Sandwith, and f. *urbica* Léman, R. Melville, *R. tomentosa* Sm. var. *pseudocuspidata* (Crép.) Rouy, R. Melville, *Carex remota* L., E. Milne-Redhead, *Milium effusum* L., Mrs B. Welch, and *Deschampsia caespitosa* (L.) Beauv. var. *parviflora* (Thuill.). E. Milne-Redhead. Other interesting plants seen in the wood were *Achillea Ptarmica* L., *Centaurium pulchellum* (Sw.) E. H. L. Krause, and *Luzula sylvatica* (Huds.) Gaud. The best find of the afternoon was R. Melville's discovery of *Salix cinerea* L. in the wood.

The railway cutting at Wymington exposes the Oolite Series and produced some interesting plants. The Nene is a small district and a number of district records were made, including *Arenaria leptoclados* (Rchb.) Guss., D. P. Young, *Atriplex patula* L. var. *linearis* G. & G., det. A. J. Wilmott, *Allium vineale* L., *Avena fatua* L. var. *pilosissima* S. F. Gray, *Festuca longifolia* Thuill. var. *trachyphylla* (Hack.) Howarth, and *Galeopsis angustifolia* Hoffm. Other plants seen here included *Genista tinctoria* L., *Trifolium medium* L., *Euphorbia platyphyllos* L., *Valerianella dentata* (L.) Poll. var. *mixta* (L.). D. P. Young, and *Bartsia Odontites* var. *verna* (Rchb.).

SUNDAY, JULY 21.

In the morning Flitwick Moor was visited, a stop being made on the way to look at *Trifolium ochroleucon* Huds. by the roadside at Wilshamstead. The moor, which is in the Ivel district, is an acid marsh which has been well botanised, and although the party divided into three sections little new was recorded. Among other plants seen were *Potentilla reptans* L. var. *mollis* Borbás. N. D. Simpson. *Dipsacus pilosus* L., *Galeopsis speciosa* Mill., *Populus deltoides* Marsh. × *nigra* L., ×*P. canadensis* Moench var. *Eugenii* (Simon-Louis) Schelle, R. Melville, *Agropyron repens* (L.) Beauv. var. *dumetorum* (Schreb. ex Schweigg. et Koert.) Roem. et Schult.. N. D. Simpson, and *A. caninum* (L.) Beauv. var. *glaucescens* Lge., N. Y. Sandwith. The following *Salices* were also recorded by R. Melville: *S. cinerea* L., *S. atrocinerea* Brot., *S. viminalis* L., *S. Caprea* × *viminalis* and *S. atrocinerea* × *aurita*.

The main party then proceeded to Woburn for lunch but a small group visiting Flitwick Station found another fine colony of wool aliens including †*Medicago minima*, †*M. hispida* var. *apiculata*, †*Trifolium subterraneum*, †*T. angustifolium* and †*Polypogon monspeliensis* (already seen at Eaton Socon), and with them †*Erodium Botrys* (Cav.) Bert., ‡*Medicago laciniata* Mill., J. P. M. Brenan, †*Brassica juncea* Coss., R. Melville, and ‡*Bromus rubens* L., J. P. M. Brenan. Other plants seen at the station were *Jasione montana* L. var. *major* M. & K. and ‡*Hieracium brunneo-croceum* Pugsl., J. P. M. Brenan, both det. H. W. Pugsley.

From Woburn the party went into the Ouzel district to King's Wood, Heath and Reach. The north-west side of this wood is on open Lower Greensand but the remainder is covered with a variable layer of Boulder Clay. The wealth of plant life seen included *Hypericum dubium* Leers, *Polygala serpyllifolia* Hose, *Tilia cordata* Mill. (probably native here), *Trifolium filiforme* L., *Epilobium montanum* × *obscurum*, J. P. M. Brenan, *E. adenocaulon* × *montanum*, E. Milne-Redhead, *Gnaphalium sylvaticum* L., *Campanula latifolia* L., *Salix aurita* L., *S. atrocinerea* × *aurita*, *S. atrocinerea* × *Caprea* (all Salices by R. Melville), *Neottia Nidus-avis* (L.) L. C. Rich., *Epipactis Helleborine* (L.) Crantz, *Carex pallescens* L., *C. pilulifera* L., and *Dryopteris Borreri* Newm., P. Taylor. The early evening was spent on the Heath where the following plants were seen: *Sagina apetala* Fr., N. D. Simpson, *Anagallis foemina* Mill., J. P. M. Brenan, *Chenopodium opulifolium* Schrad., J. P. M. Brenan, and *Polygonum aequale* Lindm., N. D. Simpson—all new district records—and *Antirrhinum Orontium* L.

Monday, July 22.

A smaller party set out on Monday for the final excursion, a number of members having left on the Sunday evening. The whole day was spent in the Ivel district, *Orobanche Rapum-genistae* Thuill. being seen at Shefford and *Ulmus Plotii* Druce (H. K. Airy Shaw) at Pegsdon. The latter is a first record for the Ivel district. Knocking Hoe, the main objective, is a small hill on the Lower Chalk escarpment. *Hypochoeris maculata* L. (I had not previously seen both in flower on the same day), *Iberis amara* L., *Senecio integrifolius* (L.) Clairv. and *Euphrasia pseudo-Kerneri* Pugsl. (confirmed by H. W. Pugsley), E. Milne-Redhead).

After lunch at Silsoe the afternoon was spent on a large rubbish dump at Sundon. Aliens were here in evidence and included *Lepidium sativum* L., *Silybum Marianum* (L.) Gaertn., R. Melville, ‡*Spinacia oleracea* L., ‡*Amaranthus caudatus* L., det. N. Y. Sandwith, R. Melville, ‡*Panicum miliaceum* L., N. D. Simpson, *Agropyron repens* (L.) Beauv. var. *pubescens* (Doell) Hegi, N. D. Simpson, and two varieties of wheat, ‡*Triticum compactum* Host var. *Humboldtii* (Koern.) and ‡*T. turgidum* L. var. *iodurum* (Koern.), R. Melville.

The party dispersed near Houghton Regis where a fine show of *Melampyrum arvense* L. by the roadside made an appropriate ending to an enjoyable excursion.

Additional plants observed by individual members during the week-end included *Sagina filicaulis* Jord., at Bedford, D. P. Young; *Chenopodium ficifolium* Sm., near Woburn (confirmed by J. P. M. Brenan), H. K. Airy Shaw, *Rumex crispus* × *obtusifolius* at Great Barford, N. Y. Sandwith, and ×*Festulolium loliaceum* (Huds.) P. Fourn. in a meadow near Eaton Socon, J. P. M. Brenan.

I must thank Lady Roche, Mrs Vivian, Messrs Burges, Chambers, Chapple, Guppy, Melville, Lucas and Shaw who at various times during the week-end gave lifts to members of the excursion.

J. G. DONY.

SEPTEMBER 6-9, THE NEIGHBOURHOOD OF OXFORD.

Leader: Mr J. P. M. BRENAN.

The following 41 members and guests, besides the leader, took part in this excursion, including some who were present only for a portion of the period:—Mr W. B. Alexander, Miss Barton, Mrs Boyd-Watt, Miss Brooke, Dr Burges, Mr R. Burn, Mr R. Burnett, Miss Campbell, Mr Chapple, Mrs Clokey, Mr Clokey, Mr Collenette, Dr Dony, Lady Douie, Mrs Evetts, Mrs Foggitt, Mr Gough, Commander Graham, Dr Harley, Mrs Hassall, Mr Holland, Dr Hughes, Miss I. B. King, Miss Kitson, Miss Longfield, Mr Lousley, Miss M. Marriott, Miss Morgan, Mrs Milvain, Mr Pugsley, Mr Raison, Lady Roche, Miss Rudkin, Mr Simpson, Mr Taylor, Miss Vachell, Mr Warren, Mrs Welch, Miss Wethered, Mrs Whitwell, Mr Woodhead.

FRIDAY, SEPTEMBER 6.

In the evening members and friends met at the School of Forestry, Oxford, where Prof. H. G. Champion had kindly allowed us the use of a lecture-room. Mrs W. O. James, of the University Department of Botany, then showed us two of her films on Deadly Nightshade (*Atropa*) and Foxglove (*Digitalis*). Although made in connection with the collecting of these plants for medicinal purposes that was organised by Dr and Mrs James at Oxford during the late war, these films embodied much interesting information both about the economic uses of these plants and their haunts in the field. After a vote of thanks to Mrs James had been passed with applause and some discussion on the films had taken place, there was a brief talk about the excursion for the following day.

SATURDAY, SEPTEMBER 7.

In the morning the party visited the Oxford Botanic Garden, the oldest in Britain and still, for the most part, contained within the high, venerable, stone walls that were erected shortly after its foundation in 1621. The beds, in which an extensive range of plants, grouped in systematic order of families, is grown, were inspected, together with the excellent rock-garden, alas, not at its best at this time of year, and the greenhouses with their ferns, orchids, grotesque succulents and the many exuberant brightly-coloured tropical plants. In the library, adjoining the garden, a selection from the numerous treasures at the Department of Botany was on display. Specially noteworthy among these were various early and rare botanical books, sheets from historic herbaria such as those of Bobart and Sherard, and the ancient and priceless herbarium of Gregory of Reggio. Much interest was aroused by an exhibit of a living specimen of *Colchicum latifolium* Sibth. & Sm. (*C. Sibthorpii* Baker), native of Greece, placed next to Bauer's original magnificent coloured drawing of the same species, together with that drawing as it was actually published in Sibthorp and Smith's sumptuous *Flora Graeca*. Thanks are due to Prof. T. G. B. Osborn for permission and facilities for making this visit, to Miss R. Guiney and Mrs Clokey for the care and trouble that they took in preparing the exhibits in the Library, and to Mr G. W. Robinson, the Curator of the Garden, for having the greenhouses opened for us. Genial sunshine attended us at the garden, and, except for a brief shower at lunch-time, for the rest of the day.

After an hour and a half at the garden, the party went, mostly by motor-coach, to Wytham, an estate of over 3000 acres lying in Berkshire on the western confines of Oxford and now mostly under the aegis of the University. The estate covers all sides of an extensive hill rising to over 500 feet, mostly on limestone (Coral Rag and Calcareous Grit), but with the base on Oxford Clay; the hill is mostly clothed with woodland of oak, ash, sycamore, etc., but has extensive areas of grassland and more or less open bushy scrub, the latter, however, recently much reduced by ploughing. The party started from the western end of the area, following a path leading up the hill to near its summit. On the way up *Cirsium eriophorum*, the alien *Quercus Cerris* and *Centaurium pulchellum* were noted, the latter a new plant for the district and a great rarity in the county generally. The party then turned off to explore the south side of the hill. The abnormally rainy summer had caused the rides to become much overgrown with wonderfully tall bracken and codlins-and-cream, making the going difficult in places. The more noteworthy plants in these damp woodlands were *Pimpinella major*, *Agrimonia odorata* (in abundance on the clay), more *Centaurium pulchellum* by the side of a track, and an interesting series of *Epilobium* hybrids. Lunch was eaten by a small, secluded pond close to Guy's Copse, round the shores of which *Samolus Valerandi* was plentiful. In grassland close by *Cirsium eriophorum*, *Blackstonia*, *Gentiana Amarella* and *Thymus glaber* Mill. (*sens.* Ronniger) were observed, and a mass of *Inula Helenium* in a very "wild" locality, in full bloom and making a striking picture. The high water-level of the pond prevented a search for *Sonchus arvensis* var. *glabrescens* which the leader had previously seen there. After lunch most of the party walked along the crest of Wytham Hill, passing on the way a large area of *Calamagrostis epigejos*, and dropped down the north-east side to Hagley Pool, where other members of the party who had made the journey by road were rejoined.

Hagley Pool is a backwater of the R. Thames lying to the north-west of Wytham village, and is one of the most interesting areas of riparian vegetation in the neighbourhood of Oxford. The incessant rain preceding the excursion had left much standing water in the normally dry meadows near the pool, and the party was at times compelled to paddle. *Ranunculus Lingua*, *Stellaria palustris* var. *Dilleniana*, *Sium latifolium*, *Utricularia vulgaris*, *Polygonum mite* and *Triglochin palustre* were seen, and some interesting rushes near-by, including *Juncus acutiflorus* × *articulatus* and the as yet apparently unnamed rush close to *J. acutiflorus* and known as "Large 80." Just before leaving, a very peculiar plant of spear-thistle was seen in a field close to the pool, a fuller discussion of which will be found in the list of additions to floras at the end of this report. From Hagley Pool the party returned to tea at the Kemp Cafeteria, Oxford; and in the evening we met again at the School of Forestry where the day's finds were examined and discussed.

SUNDAY, SEPTEMBER 8.

On this day the weather did its very worst. Our original intention was to explore the insufficiently known area of Wychwood, and thirty-one members and friends set off by motor-coach beneath a pall of heavy, lowering clouds. A halt was called at Eynsham to look at *Calamintha Nepeta*, recently refound after having been apparently last recorded here by Boswell in 1857. A second stop was made near Freeland to look at a large patch of ×*Mentha niliaca* var. *villosa* by the roadside, where too the party found a new locality for ×*Stachys ambigua*. At North Leigh Common, where the rain started in earnest, we saw ×*Mentha piperita*. As we progressed the rain, already heavy, became a deluge, and on arrival at Wychwood, where other members were joined, something akin to a cloudburst occurred. After waiting in vain a long while for any sign of a break, it was requested that a vote be taken on whether to wait longer or to declare an official abandonment of the Wychwood project, and on a show of hands the party was almost unanimously in favour of the latter.

The party therefore returned to Oxford, where Mr Chapple kindly threw open Yardley Lodge and the Druce Herbarium. Lunch was eaten here, and some members looked at a selection of interesting Oxfordshire plants that was put on view, while others worked on material of special interest to them.

In the afternoon the rain ceased temporarily and allowed the leader to take a small party to look at the rich flora of the Port Meadow area. Although much of the meadow was under water, a number of the interesting plants were found, including *Hippuris*, *Apium repens*, *Carum segetum*, *Oenanthe fistulosa*, *Caucalis nodosa*, *Nymphoides*, *Juncus com-*

pressus and *Carex disticha*, and we were further rewarded by a most remarkable and unexpected N.C.R. from this well-worked area—*Carex serotina* Mérat (*C. Oederi* auct.). The party returned just in time to escape a thunderstorm.

MONDAY, SEPTEMBER 9.

The principal object of the last day's excursion was to explore the canal and its neighbourhood between Oxford and Banbury. As if in compensation for the previous day we were favoured with fine weather and sunshine throughout. The party set off by motor-coach, stopping first at the Wolvercote end of Port Meadow in order to see *Limosella*. The mud on which it had been plentiful a week or so earlier was under water, soon made turbid by wading botanists. However, after a little searching, a goodly number of detached, floating plants were found. Near-by the alien *Veronica filiformis* had made itself at home on a grassy bank. The next stop was at Bletchington Station, where, as at the succeeding stops by the canal, the party split into two, one part going north and the other south. In a yard by the canal *Epilobium adenocaulon*, as yet rare in Oxfordshire, occurred, and by the canal itself and the adjacent River Cherwell *Rorippa amphibia*, *Sium erectum*, *Bidens tripartita* var. *integra* and *Carex paniculata* grew. The fine fruiting plants of *Sagittaria* in the canal, with their conspicuous, greenish balls of achenes borne in close whorls of three, aroused interest here and later on at Upper Heyford. Drags were thrown in and emerged festooned with disappointingly common pondweeds. From Bletchingdon the party moved on to Rousham Gap, near Tackley, where Mrs Evetts, temporarily taking over the leadership, showed us in one of her fields a rich and unusual selection of cornfield weeds, including *Silene noctiflora*, *Geranium columbinum*, plenty of *Bupleurum rotundifolium*, *Valerianella dentata*, *Legousia hybrida*, Blue Pimpernel, *Linaria spuria*, *L. Elatine* and *Calamintha Acinos*. After a productive stay here, the party moved on to Lower Heyford where an *al fresco* lunch was eaten. Among the more interesting plants seen here were *Sisymbrium orientale*, *Geranium pusillum*, *Crataegus monogyna* var. *splendens*, *Epilobium roseum*, *Melissa*, *Chenopodium Bonus-Henricus*, *Triglochin palustre*, *Heleocharis acicularis* (non-flowering) and *Poa compressa*. Upper Heyford was next visited but was less productive. *Alisma lanceolatum* was collected in the canal, and there was an unusually fine display of *Arctium Lappa*. Before going on to Banbury a final stop was made at Somerton, where, however, nothing of major interest was found, though *Thalictrum flavum* and *Lysimachia vulgaris*, both over, grew on the Cherwell banks.

In general the aquatic flora of the canal was not found to be rich, and seems to have deteriorated a good deal during the last few years, possibly owing to the disturbance of the water caused by heavier barge-traffic. The pondweeds seen were common species (*Potamogeton natans*, *P. lucens*, *P. perfoliatus* and *P. pectinatus*) and, although both parent-species were present and a special search was made for it, no sign was seen of ×*P. decipiens* Nolte ex Koch, which was once recorded by Druce for Upper Heyford in 1886.

At Banbury the party made a brief visit to the classic locality of *Ulmus Plotii* in West Bar Street. The type-tree had rotted and been cut down, though the base of the trunk was still standing and putting forth green shoots. The second large tree of *U. Plotii* near-by was fortunately in good condition.

An excellent tea was eaten at Wincott's Café in Banbury, after which Commander Graham made a brief speech proposing a vote of thanks to the leader for running the excursion. The party then returned by motor-coach to Oxford, where the excursion officially ended.

Grateful acknowledgment must be made to the owners for permits to visit private property and estates. The leader's thanks are also especially due to Mr J. F. G. Chapple and Mrs Evetts for much valuable assistance before and during the excursion; and, by no means least, to all those who have contributed records or given expert opinions on plants found on the excursion.

RECORDS ADDITIONAL TO THE FLORAS OF OXFORDSHIRE AND BERKSHIRE.

The numbers between 1 and 5 preceding the records refer to the botanical districts (see *Fl. Berks.*, 1897, and *Fl. Oxfordsh.*, ed. 2, 1927). Those numbers in brackets after each record refer to the date, enabling the record to be correlated easily with the preceding narrative of the excursion. Voucher-specimens of the more critical or interesting plants are deposited in Herb. Druce, in the leader's herbarium, or in those of other members of the party.

2/1. *Thalictrum flavum* L. 23, Oxon. 3. By R. Cherwell near Somerton station (9).

35/3. *Rorippa amphibia* (L.) Bess. 23, Oxon. 4. By R. Cherwell near Bletchington station (9).

†49/4. *Sisymbrium orientale* L. 23, Oxon. 4. One plant on a wharf by the canal at Lower Heyford (9).

61/5. *Lepidium campestre* (L.) R. Br. 22, Berks. 1. S. side of Wytham Hill (7). 23, Oxon. 4. Field-border, Rousham Gap near Tackley (9), previously found here by Mrs Evetts.

98/3×4. *Lychnis alba* Mill. × *dioica* L. 22, Berks. 1. Wytham Woods (7).

101/1. *Stellaria aquatica* (L.) Scop. 23, Oxon. 4. By the canal, Upper Heyford (9).

127/12. *Geranium pusillum* L. 22, Berks. 1. Cornfield on Wytham Hill (7).

194/6r. *Rosa canina* L. var. *ramosissima* Rau. 23. Oxon. 3. Roadside between Somerton Station and R. Cherwell (9).

194/19f. *Rosa tomentosa* Sw. var. *scabriuscula* Sm. 23. Oxon. 4. A large bush in hedge, Rousham Gap near Tackley (9). An unusual and puzzling rose, which seems best named as above, though it is peculiar in its sparsely glandular pedicels, smooth fruit with rising and very weakly glandular sepals.

196/1k. *Crataegus monogyna* Jacq. var. *splendens* Druce. 23, Oxon. 4. Hedge by canal at Lower Heyford (9), and observed here a short while before the excursion by Mr J. F. G. Chapple and the leader.

220/4×8. *Epilobium parviflorum* Schreb. × *roseum* Schreb. 22, Berks. 1. Wytham Woods, S.W. slope (7). Det. G. M. Ash.

220/7×4. *Epilobium obscurum* Schreb. × *parviflorum* Schreb. 22, Berks. 1. Wytham Woods, S.W. slope (7). Det. G. M. Ash.

†220/7(2). *Epilobium adenocaulon* Haussk. 23, Oxon. 4. Several plants in a yard by the canal near Bletchington Station (9).

220/8. *Epilobium roseum* Schreb. 22, Berks. 1. Wytham Woods, S.W. slope (7). Det. G. M. Ash. 23, Oxon. 4. By Lower Heyford railway station (9), previously noted here by Mr J. F. G. Chapple and the leader.

220/10×4. *Epilobium montanum* L. × *parviflorum* Schreb. 22, Berks. 1. Wytham Woods, S.W. slope (7). Det. G. M. Ash.

220/10×7. *Epilobium montanum* L. × *obscurum* Schreb. 22, Berks. 1. Wytham Woods, S.W. slope (7). Det. G. M. Ash.

253/2. *Sium erectum* Huds. 23, Oxon. 4. By canal, Upper Heyford (9); by R. Cherwell near Bletchington Station (9).

255/1. *Pimpinella major* (L.) Huds. 22, Berks. 1. In scrub on S. side of Wytham Hill (7).

266/1b. *Aethusa Cynapium* L. var. *agrestis* Wallr. 23, Oxon. 4. Rousham Gap near Tackley (9).

274/1a. *Angelica sylvestris* L. var. *vulgaris* Lallem. 23, Oxon. 4. Bletchington (9).

274/1b. *Angelica sylvestris* L. var. *decurrens* Lallem. 22, Berks. 1. Wytham Woods (7).

304/3. *Valerianella dentata* (L.) Poll. 23, Oxon. 4. Cornfield at Rousham Gap near Tackley (9).

353/2. *Bidens tripartita* L. 22, Berks. 1. Hagley Pool near Wytham (7).

353/2b. *Bidens tripartita* L. var. *integra* Koch. 23, Oxon. 4. By the canal near Bletchington Station (9).

365/11. *Achillea Ptarmica* L. 23, Oxon. 3. Frequent by R. Cherwell near Somerton Station (9).

393/1. *Arctium Lappa* L. 23, Oxon. 4. Plentiful by the canal, Upper Heyford (9), previously noted here by Mr J. F. G. Chapple and the leader.

393/2. *Arctium vulgare* (Hill) Evans. 22, Berks. 1. Abundant in Wytham Woods (7), as was *A. minus* (Hill) Bernh.

396/2. *Cirsium vulgare* (Savi) Ten. 22, Berks. 1. A single most extraordinary plant in a dry pasture between Northfield Farm, near Wytham, and the R. Thames (7). The plant had several stems from the base, the stems again branching freely. The capitula were much smaller and narrower in outline than those of *C. vulgare*, with less radiating phyllaries, and densely clustered towards the ends of the branches. In appearance it suggested a cross with *C. palustre*, but Dr W. A. Sledge, who kindly reported on this plant, says that it is not, in his opinion, a hybrid, and I agree with that verdict. He adds:—" Your plant is in my opinion a very abnormal specimen of *C. vulgare*, but I can find no evidence of galling or any other possible cause of the abnormality."

463/2. *Lysimachia vulgaris* L. 23, Oxon. 3. By the R. Cherwell near Somerton Station (9).

478/4. *Centaurium pulchellum* (Sw.) E. H. L. Krause. 22, Berks. 1. By the side of tracks and with *C. umbellatum* on a grass-patch on the S.W. side of Wytham Hill (7). The second record for the county, it having been previously recorded only from Curridge Common (dist. 3) by G. C. Druce in 1893 (see Druce, *Fl. Berks.*, 341: 1897).

†543/41. *Veronica filiformis* Sm. 23, Oxon. 5. Grassy bank at Wolvercote end of Port Meadow (9).

†565/1. *Melissa officinalis* L. 23, Oxon. 4. By the canal, Lower Heyford (9).

577/5×3. *Stachys palustris* L. × *sylvatica* L. (×*S. ambigua* Sm.). 23, Oxon. 5. Large patch in roadside ditch near Freeland (8).

†646/3. *Quercus Cerris* L. 22, Berks. 1. In woodland on S.W. side of Wytham Hill (7).

729/1b. *Alisma lanceolatum* With. 23, Oxon. 4. Canal close to Upper Heyford (9).

735/2. *Triglochin palustre* L. 23, Oxon. 4. By the canal, Lower Heyford (9).

745/4. *Eleocharis acicularis* (L.) R. Br. 23, Oxon. 4. By the canal, Lower Heyford (9).

*753/22. *Carex serotina* Mérat (*C. Oederi* auct., non Retz.). 23, Oxon. 5. S. end of Port Meadow (8). The plants were growing in short turf, which was at the time submerged by flooding. The occurrence of this species here is most unexpected and remarkable, since Port Meadow is a well-worked locality and in addition *C. serotina* has hitherto been considered a plant of acid or at least base-poor habitats. Port Meadow, as was only too obvious at the time, is frequently inundated by the strongly calcareous waters of the R. Thames. There is, however, no question about the identity of the plant, a specimen of which is deposited in Herb. Druce. It seems thus that the ecological tolerance of *C. serotina* requires further investigation.

753/63. *Carex paniculata* L. 23, Oxon. 4. By the canal near Bletchington Station (9).

824/10. *Poa compressa* L. 23, Oxon. 4. Dry ground on wharf by canal, Lower Heyford (9).

851/2. *Asplenium Trichomanes* L. 23, Oxon. 3. Wall by R. Cherwell near Somerton Station (9).

851/5. *Asplenium Adiantum-nigrum* L. 23, Oxon. 3. Wall by R. Cherwell near Somerton Station (9).

851/7. *Asplenium Ruta-muraria* L. 23, Oxon. 3. Wall by R. Cherwell near Somerton Station (9).

876/7. *Chara contraria* Kuetz. 23, Oxon. 4. In the canal near Bletchington Station (9).

J. P. M. B.

Plants observed on Wytham Hill, v.c. 22, on 7th September 1946

The following list, although certainly far from complete, may be useful as a basis for further exploration of this interesting area.

Clematis Vitalba L.
Ranunculus repens L.
R. arvensis L.
Brassica nigra (L.) Koch.
Capsella Bursa-pastoris (L.) Medic.
Lepidium campestre (L.) R. Br.
Helianthemum nummularium (L.) Mill.
Viola Riviniana Reichb.
V. hirta L.
Lychnis alba Mill.
L. alba Mill. × *dioica* L.
L. dioica L.
Cerastium vulgatum L.
Stellaria media (L.). Vill.
S. graminea L.
Arenaria serpyllifolia L.
Hypericum hirsutum L.
H. pulchrum L.
H. quadrangulum L.
H. dubium Leers.
H. humifusum L.
Linum catharticum L.
Geranium pusillum L.
G. Robertianum L.
Erodium cicutarium (L.) L'Hérit.
Ilex Aquifolium L.
Euonymus europaeus L.
Rhamnus catharticus L.
Acer Pseudo-platanus L.
A. campestre L.
Trifolium pratense L.
T. dubium Sibth.
Lotus corniculatus L.
Vicia sepium L.
Prunus spinosa L.
Spiraea Ulmaria L.

Rubus vestitus Weihe.
R. caesius L.
Geum urbanum L.
Fragaria vesca L.
Potentilla Anserina L.
P. reptans L.
P. erecta (L.) Rausch.
P. sterilis (L.) Garcke.
Agrimonia odorata (Gouan) Mill.
Pyrus Malus L.
Crataegus monogyna Jacq.
Hippuris vulgaris L.
Epilobium angustifolium L.
E. hirsutum L.
E. parviflorum Schreb.
E. parviflorum Schreb. × *roseum* Schreb.
E. obscurum Schreb.
E. obscurum Schreb. × *parviflorum* Schreb.
E. roseum Schreb.
E. montanum L.
E. montanum L. × *obscurum* Schreb.
E. montanum L. × *parviflorum* Schreb.
Circaea lutetiana L.
Bryonia dioica Jacq.
Pimpinella major (L.) Huds.
Angelica sylvestris L. var. *decurrens* Lallem.
Peucedanum sativum (L.) B. & H.
Heracleum Sphondylium L.
Cornus sanguinea L.
Sambucus nigra L.
Viburnum Opulus L.
V. Lantana L.
Lonicera Periclymenum L.
Galium uliginosum L.
G. verum L.
G. Aparine L.
Dipsacus fullonum L. (*D. sylvestris* Huds.).
D. pilosus L.
Scabiosa Succisa L.
Bellis perennis L.
Inula Helenium L.
I. Conyza DC.
Pulicaria dysenterica Bernh.
Achillea Millefolium L.
Senecio Jacobaea L.
S. erucifolius L.
Carlina vulgaris L.
Arctium vulgare (Hill) Evans.
A. minus (Hill) Bernh.
Cirsium eriophorum (L.) Scop.
C. vulgare (Savi) Ten.
C. acaulon (L.) Scop.
C. arvense (L.) Scop.
C. palustre (L.) Scop.
Centaurea nemoralis Jord.
C. Scabiosa L.
Crepis capillaris (L.) Wallr.
Leontodon hispidus L.
L. Leysseri (Wallr.) Beck.
Taraxacum officinale Weber.
T. laevigatum (Willd.) DC.
Sonchus asper (L.) Hill.
Campanula rotundifolia L.
Primula veris L.
Lysimachia Nummularia L.
Anagallis arvensis L.
Samolus Valerandi L.
Fraxinus excelsior L.
Ligustrum vulgare L.
Blackstonia perfoliata (L.) Huds.
Centaurium umbellatum Gilib.
C. pulchellum (Sw.) E. H. L. Krause.
Gentiana Amarella L.
Cynoglossum officinale L.
Lycopsis arvensis L.
Myosotis arvensis (L.) Hill.
Lithospermum officinale L.
Echium vulgare L.
Solanum nigrum L.
Hyoscyamus niger L.
Verbascum Thapsus L.
Linaria minor (L.) Desf.
Scrophularia aquatica L.
S. nodosa L.
Veronica officinalis L.
V. montana L.
V. serpyllifolia L.
V. arvensis L.
V. persica Poir.
Euphrasia nemorosa (Pers.) Loehr.
Bartsia Odontites Huds.
Mentha aquatica L.
Thymus glaber Mill.
Clinopodium vulgare L.
Nepeta hederacea (L.) Trev.
Prunella vulgaris L.
Ajuga reptans L.
Plantago major L.
Chenopodium polyspermum L. var. *obtusifolium* Gaud.
Polygonum Convolvulus L. var. *subalatum* Lej. & Court.
P. lapathifolium L.
P. Persicaria L.
P. aviculare L.
Rumex sanguineus L. var. *viridis* Sibth.
R. Acetosella L.
Euphorbia amygdaloides L.
E. exigua L.
Mercurialis perennis L.
Urtica dioica L.
Betula alba L.
Carpinus Betulus L.
Corylus Avellana L.

Quercus Robur L.
Q. Cerris L.
Fagus sylvatica L.
Salix atrocinerea Brot.
Orchis Fuchsii Druce.
Tamus communis L.
Juncus effusus L.
J. inflexus L.
J. bufonius L.
Typha latifolia L.
Lemna minor L.
L. trisulca L.
Alisma Plantago-aquatica L.
Potamogeton natans L.
Scirpus lacustris L.
Carex riparia Curt.
C. pendula Huds.
C. sylvatica Huds.
C. flacca Schreb.
Calamagrostis epigejos (L.) Roth.
Holcus mollis L.
Dactylis glomerata L.
Poa annua L.
Scleropoa rigida (L.) Griseb.
Festuca gigantea (L.) Vill.
F. rubra L.
Brachypodium sylvaticum (Huds.) Beauv.
B. pinnatum (L.) Beauv. var. *pubescens* S. F. Gray.
Equisetum Telmateia Ehrh.
E. palustre L.
Pteridium aquilinum (L.) Kuhn.

J. P. M. B.

OBITUARIES

William Edward Nicholson (1866-1945). The passing of W. E. Nicholson should be chronicled in our pages, for though known as an eminent bryologist for about fifty years, he had formerly been a member of the Botanical Society. In his younger days he had been a keen student of the Sussex flora, utilising all his spare time in exploring the county in which he spent nearly all the years of his life. Although mosses and hepatics claimed all of his interest as the years went by, many of his records can be found in the *Flora of Sussex* (1937). He knew the flora of the downs in East Sussex about Lewes extremely well, and his knowledge of plant habitats brought him the friendship among others of our late member C. B. Tahourdin, well known for his study of our native orchids.

E. C. Wallace.

John Frederick Rayner (1854-1947). The late Mr J. F. Rayner will be remembered for his work on the Hampshire flora and also as a writer of popular articles on many aspects of plant life.

For the greater part of his life he was in business as a florist at Swaythling, Southampton, and much of his leisure was spent in exploring the New Forest and Isle of Wight. This work culminated in the publication of his Supplement to Townsend's *Flora of Hampshire* in 1929. His interests were not restricted to the flowering plants and indeed he wrote the chapters on fungi for Frank Morey's *Guide to the Natural History of the Isle of Wight*, 1909, and the Bournemouth Natural Science Society's *Natural History of Bournemouth and District*, 1914. In addition, he was interested in mosses and liverworts, and wrote many papers on all these groups for local periodicals.

Rayner possessed that rare gift of making difficult subjects interesting to readers who are not botanists and his long series of contributions to *Countryside* appealed to a wide public. Finding that scientific names were a stumblingblock to some of his readers he produced his *Standard Catalogue of English Names of our Wild Flowers* (undated) which included representatives of the critical groups.

My own correspondence with him extending over twenty-five years led to a warm appreciation of his sound practical knowledge. His long training as a horticulturalist provided a deeper insight into the life of plants than some of us can hope to obtain, and while he had a keen eye for differences he was apt to be sceptical of the work of "garret-botanists." While interested in critical plants early experience of specialists giving various names to single gatherings rendered him sometimes rather cynical of their efforts.

Aliens were a favourite study and he wrote "The Alien Flora of Hampshire and the Isle of Wight" (*Proc. I.o.W. Nat. Hist. Soc.*, 1923). Moreover, while keenly interested in the conservation of our flora, he used aliens on the credit side of the balance-sheet to give a very fair account of gains as well as losses in his writings.

Rayner was a member of this Society from 1915 to 1934, and for a time he was a contributor to the Watson Botanical Exchange Club. His activities about 1929 give a good indication of his interests: he was President of the Southampton Natural History Society, Vice-President of the Southampton Rambling Club and the British Empire Naturalists' Association, member of the Council of the Hampshire Field Club, Honorary Member of the Isle of Wight Natural History Society and Bournemouth Natural Science Society, Fellow of the Royal Horticultural Society, and a member of the British Mycological Society, the South-Eastern Union of Scientific Societies and our own Society.

All his botanical specimens with the exception of the mosses and lichens have been sent to the Bournemouth Natural Science Society and his books to the Southampton Central Library. The mosses and lichens have been offered by his daughter, Mrs Esther M. Edwards, to the South London Botanical Institute.

He died on January 19, 1947, at Westerham, Kent, in his 93rd year, and in accordance with his wishes his ashes were scattered in the New Forest—in a heathy spot not far from Pickett's Post.

Some of the information incorporated in this appreciation has been kindly provided by Mrs Edwards.

J. E. LOUSLEY.

DR W. H. WACHTER (1882-1946). Dr W. H. Wachter was born on December 5th, 1882. He attended a teachers' college and in 1901 was appointed a teacher at Rotterdam. He studied mathematics and later biology. In 1916 ensued his appointment as master of biology at a secondary school in Rotterdam, and 1935 he was pensioned off. In January 1946 Leyden University conferred upon him an honorary degree of Doctor of Science. On September 1st, 1946, he died of heart-failure.

From his early days Wachter collected and studied plants. In 1896 Wachter and the writer of this obituary joined forces in building up a large herbarium, which contains over 50,000 items and has been bequeathed to the National Herbarium at Leyden. Wachter specialised in the difficult genera: *Carex*, *Orchis*, *Salix*, *Rumex*, *Polygonum*, *Erodium*, *Rubus*, etc., and after 1925 more particularly in mosses and hepatics. The results of this research were published (in collaboration with the present writer) in *Nederlandsch Kruidkundig Archief* (Floristische Aantekeningen 1-34; Briologische Aantekeningen 1-10) of which periodical he had been the editor ever since 1919. During this time he edited over ten thousand pages, providing them with various indices. Also the personal notes were largely his work. Since Heukels' death, he edited the floras in general use at Dutch schools. His last work was the memorial volume, written on the occasion of the centenary of the Royal Dutch Botanical Society of which Dr Wachter was an honorary member.

P. JANSEN.

At their meeting on March 27th, 1946, the Council had agreed that the name of Dr W. H. Wachter should be put forward at the next Annual General Meeting of this Society for election as an Honorary Member but his sudden death six months later has prevented fulfilment of the intention. I never met Dr Wachter but knew him as a most kindly and generous correspondent who would take the utmost trouble to answer my enquiries. At 63 we might have hoped that he had a good many years of active work before him and yet it was difficult to believe that he was not older in view of the very long period during which he had taken a leading part in the field botany of the Netherlands. At the time of his death he was looking forward eagerly to the appearance of the first part of the important new Flora on which he had worked so hard and of which publication had been delayed by the war.

J. E. LOUSLEY.

BIOLOGICAL FLORA OF THE BRITISH ISLES

At the Botanical Tea Party held in Oxford in January 1947, Dr P. W. Richards gave an account of the above-mentioned undertaking and appealed to members of this Society to assist in any way they could. The scope of this work is set out below. The Editors of the *Biological Flora* (Professor W. H. Pearsall, Professor A. R. Clapham and Dr P. W. Richards) would be glad to receive notes and data of any kind on British species for the flora, including notes on species of which accounts are not at present in preparation, and corrections or additions to accounts already published.

REVISED SCHEDULE FOR CONTRIBUTORS

The roman figures, italic letters and italicized titles given in this schedule should also appear as section headings in the published accounts. Sections may consist of one or more paragraphs according to the amount of relevant information available. Where there is no information on any point specifically mentioned in the schedule, the fact should be stated.

Accounts should in general *not exceed 4000 words of text, including tables (6 pages of the Journal) with a further allowance of 2 pages for maps, drawings and diagrams.* For a limited number of species, at the editors' discretion, the space allowance may be increased to a maximum of 12 pages of text and 4 of diagrams, etc.; before preparing their MSS. contributors should ascertain from the editors in which category the species they are concerned with belong. For British vascular plants nomenclature should follow the " Check-list of British vascular plants " (*J. Ecol.*, *33*, 1946, pp. 308-47). For bryophytes referred to in the text nomenclature should follow the *Census Catalogue of British Mosses* (2nd ed., 1926) and the *Census Catalogue of British Hepatics* (3rd ed., 1930). " Authorities " for names of British plants other than fungi need not be quoted, but should be given for fungi and all non-British plants and for the names of animals. References should follow the memorandum on " References in the Biological Flora " (*J. Ecol.*, *32*, 1944, pp. 116-17). On the map the types of shading desired, and the limits of the distribution in the inset map of Europe should be marked *in pencil*; suitable mechanical tints will be applied by the printers.

SCHEDULE

Name. The name of the species should be followed by the number according to the *London Catalogue of British Plants* (11th ed., 1925), and if necessary by not more than one or two of the most important synonyms.

Taxonomic description. Subgenus or section to which species belongs. Variability, including mention of subspecies, varieties, ecotypes, forms, etc., known to be British (see " Memorandum on Nomenclature and Taxonomy in the Biological Flora," *J. Ecol.*, *31*, 1943, pp. 93-6). A brief statement of the status (native, naturalized, etc.) of the species, and of its habitat or habitats.

I. *Geographical and altitudinal distribution.* Distribution* and abundance in the British Isles. Extra-British distribution. Altitudinal limits in Britain and abroad.

II. *Habitat.* (*a*) *Climatic and topographical limitations.* Climatic (including micro-climatic) limitations and preferences with regard to temperature, rainfall, atmospheric humidity, exposure to wind, etc. Light intensity and its seasonal variation in relation to the life history and distribution of the species. Topographical limitations and preferences (restriction to north- or south-facing slopes, open or shaded habitats, etc.). Tidal range, etc., for maritime species.

(b) *Substratum.* Parent material. Appearance of soil profile. Height and seasonal variation of the water table. Abundance of worms and other burrowing animals. Rate of decay and incorporation of humus. Appearance and texture of raw humus or peat, if present. *p*H at different depths, stating how determined: the depths should be selected in relation to the layers of the soil profile and the rooting depth of the characteristic plants. Humus content or " loss on ignition." $CaCO_3$ content. Other chemical analyses (potassium, phosphate, total nitrogen, nitrate nitrogen, salinity, etc.). Mechanical analyses.

Where a species occupies a great variety of habitats it may be impossible to give precise information under all the above headings, but some indication of ranges and of the characteristics of the most frequent habitats may be valuable.

III. *Communities.* Communities in which the species occurs with its frequency in each and with lists of closely associated species.

Complete lists with frequency symbols should be given if possible, but lists only of the chief associated species, and especially of the dominants, will be adequate. The most useful form in which to give this information is a table with the names of associated species in the left-hand column, the remaining columns showing the frequencies in the various localities named at the heads of the columns. These frequencies may be indicated by the conventional symbols or by figures representing the percentage occurrence of the associated species in a stated number of quadrats (e.g. of 1 sq.m. for herbaceous plants), all of which include the species in question. It is important that any one list should

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*Contributors who wish to consult the most recent vice-comital records should send their data of vice-comital distribution (with a stamped and addressed envelope) to Mr A. J. Wilmott, 17 Melrose Road, Merton Park, London, S.W.19, asking him to check them against his annotated copy of Druce's *Comital Flora*.

refer only to one kind of habitat and to restricted areas including the species in question. Lists should include characteristic species of other groups than flowering plants, if possible.

IV. *Response to biotic factors.* Effect of felling, burning, coppicing, mowing, peat-cutting, grazing, rabbit-nibbling, trampling, manuring, ploughing, etc.

V. (*a*) *Gregariousness.* Solitary plants, large patches, small patches, etc.

(*b*) *Performance in various habitats.* Average height; whether flowering freely, poorly, not at all; whether setting seed, etc.

(*c*) *Effect of frost, drought,* etc. Sensitivity to exceptional weather conditions.

VI. (*a*) *Morphology.* Form, depth, direction of growth and length of underground stems and functional roots. Other morphological data only if of special ecological importance.

(*b*) *Mycorrhiza.* Presence or absence of mycorrhiza and its type if present.

(*c*) *Perennation; reproduction.* Raunkiaer life-form. Mode of perennation and general description of winter conditions. Mode and rate of vegetative reproduction and spread. Longevity of the individual plant. Age of plant at first flowering. Does the plant set seed (or produce seedlings) every year, or at what interval?

(*d*) *Chromosome number.* State the authority and the source (British or foreign) of the material examined.

(*e*) *Physiological data.* Transpiration rates, osmotic values, etc., where relevant.

VII. *Phenology.* Times of maximal growth of roots and other underground organs; of appearance of new leafy shoots; of flowering; of maturation and shedding of seeds; of germination of seeds.

VIII. (*a*) *Floral biology.* Mode of pollination of flowers. Insect visitors to flowers and their behaviour. Are the flowers self-compatible? Are cleistogamic flowers produced, and, if so, when? Is reproduction amphi- or apomictic? Does vivipary occur?

(*b*) *Hybrids.* Existence and frequency of natural hybrids. By what criteria are the hybrids recognized as such? To what extent do the hybrids show a diminished fertility as compared with the parents? Do they show any differences in ecological behaviour?

(*c*) *Seed production and dispersal.* Average numbers of seeds per fruit and per plant. Mode of seed dispersal and special features, if any, e.g. seeds tend to stick together.

(*d*) *Viability of seeds; germination.* Viability of seeds under different conditions (state how determined). Place of germination under natural conditions. Special conditions affecting germination, e.g. sensitivity to light, necessity for preliminary freezing, etc. Conditions for successful establishment of seedlings.

(*e*) *Seedling morphology.* Short description and sketch of young seedlings.

(*f*) *Effective reproduction.* Relative importance of reproduction by seed and by vegetative means.

IX. (*a*) *Animal feeders or parasites.* Insects or other animals feeding on the plant, and the part or parts eaten by them.

(*b*) *Plant parasites.* Fungi or other plants of which the species is a host, and the parts attacked by them.

(*c*) *Diseases.* Descriptions of the symptoms and the names of causal organisms, if any, of diseases causing serious damage. Assess as far as possible the importance of the damage done by the diseases. Does the incidence of the disease vary with habitat and season?

Contributors should, as early as possible, send provisional lists of insects and fungi, with stamped and addressed envelopes, to Dr O. W. Richards (Imperial College Field Station, London Road, Slough, Bucks.) and Dr Alex. Smith (Plant Pathologist Laboratory, Ministry of Agriculture and Fisheries, Milton Road, Harpenden, Herts.) respectively, who have kindly consented to assist contributors with references to these groups.

NOTE ON REFERENCES TO INSECTS (O. W. RICHARDS)

The lists of insects will in general be restricted to those closely associated with a single genus or species of plant, but may include some which feed on two or more allied genera of plants, or on a few genera living in the same habitat. Insects for which the records do not state the individual species of plants will be listed only in the accounts of genera.

Sometimes insects with polyphagous feeding habits may actually be more common on a plant than the restricted feeders, but a list of general feeders would be extremely long and very difficult to make complete. Where a general feeder is actually known to be a serious check to a plant, the record will be included.

Only British insects will be listed, but they will include some whose feeding habits may have been observed only on the Continent. Records will be given of the British distribution, in a very condensed form, where there is reason to think the information reliable. Absence of records often means that an insect has not been collected rather than that it is not present. The very imperfect state of the records of insect feeding habits and distribution must be stressed.

Lists will be given of the larger works from which the records have been taken, and the experts who have been consulted.

X. *History.* A brief account of the history of the species as a member of the British flora, with notes on fossil records, dates of introduction of denizens and aliens, etc.

ACCOUNTS PUBLISHED OR IN PREPARATION

The parts already published are:

Juncus L., by P. W. Richards and A. R. Clapham. *J. Ecol.*, *29*, no. 2.
J. inflexus L., by P. W. Richards and A. R. Clapham. *J. Ecol.*, *29*, no. 2.

J. effusus L., by P. W. Richards and A. R. Clapham. *J. Ecol.*, *29*, no. 2.
J. conglomeratus L., by P. W. Richards and A. R. Clapham. *J. Ecol.*, *29*, no. 2.
J. subnodulosus Schrank, by P. W. Richards and A. R. Clapham. *J. Ecol.*, *29*, no. 2.
**Zostera* L., *Z. marina* L. and *Z. hornemanniana* Tutin, by T. G. Tutin. *J. Ecol.*, *30*, no. 1.
Cladium mariscus R. Br., by V. M. Conway. *J. Ecol.*, *30*, no. 1.
Aster tripolium L., by A. R. Clapham, W. H. Pearsall and P. W. Richards. *J. Ecol.*, *30*, no. 2.
Juncus filiformis L., by P. W. Richards. *J. Ecol.*, *31*, no. 1.
J. macer Gray, by P. W. Richards. *J. Ecol.*, *31*, no. 1.
**Rhamnus cathartica* L. and *Frangula alnus* Mill, by H. Godwin. *J. Ecol.*, *31*, no. 1.
Tamus communis L., by I. H. Burkill. *J. Ecol.*, *32*, no. 1.
Acer campestre L. and *A. pseudo-platanus* L., with a note on *A. platanoides* L., by E. W. Jones. *J. Ecol.*, *32*, no. 2.
**Polygonum* L. em Gaertn., *P. persicaria* L., *P. lapathifolium* L. and *P. petecticale* (Stokes) Druce, by N. W. Simmonds. *J. Ecol.*, *33*, no. 1.
Gentiana pneumonanthe L., by N. W. Simmonds. *J. Ecol.*, *33*, no. 2.
Allium vineale L., by R. H. Richens, *J. Ecol.*, *34*, No. 1.
**Glyceria maxima* (Hartm.) Holmb., by Dr J. M. Lambert, *J. Ecol.*, *34*, No. 2.
Atropa bella-donna L., by R. W. Butcher, *J. Ecol.*, *34*, No. 2.

These may be obtained from the Cambridge University Press, 200 Euston Road, N.W.1, at 1s each; those marked with an asterisk are sold as double parts, 2s. Standing orders for all parts issued may be placed at the reduced price of 9d each, double parts 1s 6d.

The following are being prepared:

Aconitum anglicum Stapf, H. A. Hyde, National Museum of Wales, Cardiff.
Adoxa moschatellina L., Prof. M. Skene, The University, Bristol.
Alchemilla vulgaris agg., *A. alpina* L., and *A. conjuncta* Bab., S. M. Walters, Botany School, Cambridge.
Allium ursinum L., Prof. T. G. Tutin, University College, Leicester.
Anagallis arvensis L. and *A. foemina* Mill., J. L. Crosby, Department of Botany, The University, Durham.
Andromeda polifolia L., Prof. W. H. Pearsall, F.R.S., Department of Botany, University College, Gower Street, W.C.1.
Anemone nemorosa L., A. C. Crundwell, Loadhams, Farnham, Surrey.
Arenaria verna L., Dr K. Blackburn, King's College, Newcastle-on-Tyne.
A. norvegica Gunn., Dr W. A. Clark, King's College, Newcastle-upon-Tyne.
Arum maculatum L., F. A. Sowter, 9 North Avenue, Leicester.
Asperula odorata L., Prof. A. R. Clapham, Department of Botany, The University, Sheffield.

Blackstonia perfoliata (L.) Huds., Dr B. Colson, University Department of Botany, Reading.

Carex acutiformis Ehrh., *C. bigelowii* Torr., *C. curta* Good., *C. disticha* Huds., *C. riparia* Curt., and *C. saxatilis* L., E. Vernon Watson, University Department of Botany, Reading.

Carlina vulgaris L., *Cirsium palustre* (L.) Scop. and *C. vulgare* (Savi) Ten. (*C. lanceolatum* (L.) Scop.), Dr W. A. Sledge, University Department of Botany, Leeds, 2.

Clematis vitalba L., O. Polunin, Charterhouse, Godalming.

Colchicum autumnale L., Dr R. W. Butcher, Culford House, Ewe Lamb Lane, Bramcote, Notts.

Corallorrhiza trifida Châtel., Prof. J. R. Matthews and Dr Downie, University Department of Botany, Old Aberdeen.

Cornus sanguinea L., J. W. Wilson, Department of Botany, Oxford.

Cuscuta europaea L., Bernard Verdcourt, 86 Claremont Road, Luton, Beds.

Danaa cornubiensis (L.) Burnat, Dr G. Pethybridge, Penlee, Harleigh Road, Bodmin.

Daphne laureola L., Dr P. W. Richards, The Botany School, Cambridge.

Elymus arenarius L., T. E. T. Bond, Tea Research Institute, Ceylon.

Epilobium nummulariifolium R. Cunn., Miss A. J. Davey, Department of Botany, Memorial Buildings, Bangor.

Eriocaulon septangulare With., Dr Leighton Hare, Jodrell Laboratory, Royal Botanic Gardens, Kew.

Galium debile Desv., *G. palustre* L. and *G. uliginosum* L., A. C. Crundwell, Department of Botany, Oxford.

G. erectum Huds. and *G. mollugo* L., Miss M. Priestley, c/o The Botany School, Cambridge.

Glaux maritima L., Miss C. M. Gibson, Municipal College, Portsmouth.

Glyceria declinata Bréb., *G. plicata* Fr. and *G. fluitans* (L.) R. Br., Dr J. M. Lambert, Westfield College, Hampstead, N.W.3.

Goodyera repens R. Br., Prof. J. R. Matthews and Dr Downie, University Department of Botany, Old Aberdeen.

Helictotrichon (*Avena*) *pratense* (L.) Pilger and *H. pubescens* (Huds.) Pilger, Dr G. Carson, School of Agriculture, Cambridge.

Juncus articulatus L., em. Wahlenb. and *J. acutiflorus* Ehrh. ex Hoffm., Prof. A. R. Clapham, Department of Botany, The University, Sheffield.

J. squarrosus L., Prof. W. H. Pearsall, F.R.S., University College, Gower Street, London, W.C.1.

J. triglumis L., Dr W. A. Clark, King's College, Newcastle-on-Tyne.

Juniperus communis L., Prof. T. G. Tutin, University College, Leicester.

Leontodon leysseri (Wallr.) Beck (*Thrincia hirta* Roth) and *L. hispidus* L., Dr K. Blackburn, King's College, Newcastle-on-Tyne.

Leucojum aestivum L., Dr F. B. Hora, University Department of Botany, Reading.

Limosella aquatica L., Dr F. W. Jane and Miss R. Dowling, Department of Botany, University College, Gower Street, London, W.C.1.

L. subulata Ives, Dr K. Blackburn, King's College, Newcastle-on-Tyne.

Listera cordata (L.) R. Br., Prof. J. R. Matthews, University Department of Botany, Old Aberdeen.

Lloydia serotina (L.) Reichb. and *Lobelia dortmanna* L., Dr N. Woodhead, University Department of Botany, Bangor, North Wales.

Luzula forsteri (Sm.) DC. and *L. pilosa* (L.) Willd., Prof. T. Harris, University Department of Botany, Reading.

L. sylvatica (Huds.) Gaud., Miss E. M. Leyland, 25 Devon Street, Barrow-in-Furness, Lancs.

Melandrium dioicum (L.) Coss. & Germ. and *M. album* (Mill.) Garcke, H. G. Baker, University Department of Botany, Leeds, 2.

Myosotis arvensis (L.) Hill, *M. collina* Hoffm. and *M. versicolor* Sm., A. E. Wade, National Museum of Wales, Cardiff.

Myrica gale L., Miss A. J. Davey, Department of Botany, Memorial Buildings, Bangor.

Naias flexilis Rostkov, Prof. J. W. Heslop Harrison, F.R.S., King's College, Newcastle-on-Tyne.

Narcissus pseudo-narcissus L., Dr J. Caldwell, University College. Exeter.

Nardus stricta L., R. Elfyn Hughes, Department of Agricultural Botany, Bangor.

Narthecium ossifragum (L.) Huds., Dr Mollison, University Department of Botany, Old Aberdeen.

Nasturtium officinale R. Br., agg., H. W. Howard, School of Agriculture, Cambridge.

Obione portulacoides (L.) Moq., and *O. pedunculata* (L.) Moq., Prof. V. J. Chapman, c/o Botany School, Cambridge.

Ophrys arachnites Hoffm., Francis Rose, The Forge House, East Malling, Kent.

Orchis fuchsii Druce, *O. elodes* Gris., *O. latifolia* L. sec. Pugsl. (*O incarnata* auct. angl.) and *O. purpurella* Stephenson, Prof. J. W. Heslop Harrison, F.R.S., King's College, Newcastle-on-Tyne.

O. purpurea Huds., Francis Rose, The Forge House. East Malling, Kent.

Oxalis acetosella L., Miss Ethel Bolton, King's College, Newcastle-on-Tyne.

Potamogeton coloratus Hornem., *P. filiformis* Pers. and *P. pectinatus* L., Prof. J. W. Heslop Harrison, F.R.S., King's College, Newcastle-on-Tyne.

P. gramineus L. and *P. rutilus* Wolfg., Dr W. A. Clark, King's College, Newcastle-on-Tyne.

Quercus robur L. and *Q. petraea* (Mattuschka) Liebl., Dr E. W. Jones. Imperial Institute of Forestry, Oxford.

Ranunculus aquatilis L., agg., Dr R. W. Butcher, Culford House, Ewe Lamb Lane, Bramcote, Notts.

Rhynchospora alba (L.) Vahl and *R. fusca* (L.) Ait. f., Miss E. Canton, Department of Biology, Technical College, Sunderland.

Rosa spp. (excl. *R. arvensis, micrantha* and *tomentosa*), Prof. J. W. Heslop Harrison, F.R.S., King's College, Newcastle-on-Tyne.

Rumex spp., J. E. Lousley, 7 Penistone Road, Streatham Common, S.W.16.

Scilla non-scripta (L.) Hoffmanns. & Link, Dr G. E. Blackman, Imperial College of Science, London, S.W.7.

Sedum acre L., Dr B. Barnes, Department of Biology, Chelsea Polytechnic, London, S.W.3.

Sinapis arvensis L., G. E. Fogg, Department of Botany, University College, Gower Street, W.C.1.

Sonchus asper (L.) Hill and *S. oleraceus* L., emend. Hill, R. A. Lewin, c/o The Botany School, Cambridge.

S. palustris L., Francis Rose, The Forge House, East Malling, Kent.

Spiranthes stricta Nels., Prof. J. W. Heslop Harrison, F.R.S., King's College, Newcastle-on-Tyne.

Stellaria nemorum L., Dr K. Blackburn, King's College, Newcastle-on-Tyne.

Subularia aquatica L., Dr N. Woodhead, Department of Botany, Bangor.

Suaeda fruticosa (L.) Forsk. and *S. maritima* (L.) Dum., Prof. V. J. Chapman, c/o Botany School, Cambridge.

Thlaspi alpestre L., Dr K. Blackburn, King's College, Newcastle-on-Tyne.

Tilia cordata Mill. and *T. platyphyllos* Scop., H. A. Hyde, National Museum of Wales, Cardiff.

Trientalis europaeus L., Prof. J. R. Matthews, University Department of Botany, Old Aberdeen.

Ulmus spp., Dr R. Melville, The Herbarium, Royal Botanic Gardens, Kew.

Urtica spp., P. Greig-Smith, Department of Botany, The University, Manchester.

Vaccinium vitis-idaea L., P. A. Tallentire, 14 Hulme Hall Avenue, Cheadle Hulme, Cheshire.

Valeriana officinalis L. and *V. sambucifolia* Mikan, J. Carpenter, Department of Botany, King's College, Strand, W.C.2.

Veronica anagallis-aquatica L., *V. aquatica* Bernh. and *V. beccabunga* L., J. H. Burnett, Department of Botany, Oxford.

Viburnum lantana L. and *V. opulus* L., Dr H. Godwin, The Botany School, Cambridge.

Viola lutea Huds. and *V. tricolor* L., Dr P. E. Fothergill, King's College, Newcastle-on-Tyne.

Wahlenbergia hederacea Reichb., Francis Rose, The Forge House, East Malling, Kent.

[The arrangement and nomenclature of the above lists are as in the British Ecological Society's schedule published in the *Journal of Ecology*. See also Check List of British Vascular Plants, *Journal of Ecology*, *33*. 308-347, 1946.]

The assistance of members of the Society will be greatly welcomed by the authors who are preparing these accounts. Information should be sent direct to the addresses given above. Anyone wishing to write an account singly or in collaboration should communicate with one of the members of the Committee or with the Hon. Secretary of the Society.

Accounts ready for publication should be sent to Dr P. W. Richards, Botany School, Cambridge.

PERSONALIA

The Botanical Society of the British Isles is represented at meetings as follows:—Association of School Natural History Societies—Dr J. G. Dony. British Association for the Advancement of Science—Mr A. H. G. Alston. Phenological Executive Committee of the Royal Meteorological Society—Mr E. Nelmes. Wild Plant Conservation Board—Mr A. J. Wilmott.

BRITISH WILD FLOWER SEED EXCHANGE

Mr B. T. Lowne has restarted the British Wild Flower Seed Exchange in connection with the South Eastern Union of Scientific Societies.

A printed list of seeds available can be obtained from Mr Lowne and seeds gathered should be sent to him in the autumn.

PERTHSHIRE, v.-cs. 87, 88, 89

The Hon. General Secretary invites any members who may be visiting Perthshire, particularly the Ben Lawers district, during the summer and autumn (1949) to get in touch with her either before or during their visit, as she expects to be at home (near Aberfeldy) from time to time. Correspondence should be addressed to the official address (c/o Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7, but those unable to write beforehand are welcome to telephone: KENMORE 244.

FLORA OF THE OUTER HEBRIDES, v.-c. 110

Miss M. S. Campbell wishes to remind members that she has resumed work on the Flora of the Outer Hebrides and is anxious to get in touch with anyone planning to visit any of the Outer Isles during 1948-9. She would also be glad to receive any notes of botanical interest.

CERASTIUM

Dr Wilhelm Möschl of Bruck/Mur, Steiermark, Österreich-Englische Zone, requests specimens or seeds of the following species of *Cerastium*:

C. campanulatum Viv.
C. carpetanum Lomax
C. glutinosum Fries
C. gracile Dufour
C. litigiosum De Lens
C. pentandrum L.
C. pumilum Curt.
C. ramosissimum Boiss.
C. Schmalhausenii Paczoski
C. semidecandrum L.
C. siculum Guss.
C. simplex Sennen & Pau
C. subtetrandrum Murb
C. tetrandrum Curt.

A key to these species is given by Dr Möschl in Fedde, *Rep. Sp. Nov.*, xli, 153 (1936).

AGRIMONIA

Mr N. H. Brittan, B.Sc., Dept. of Botany, King's College, Newcastle-on-Tyne, 1, is studying the British species. Specimens of *A. Eupatoria* L., *A. Eupatoria* L. var. *sepium* Bréb and of *A. odorata* (Gouan) Mill. will be gratefully received together with information concerning localities where any two of the three plants grow together.

VERONICA

Mr J. H. Burnett, c/o Dept. of Botany, The University, Oxford, is studying the British species with an aquatic habitat. He would value information on the distribution of *V. scutellata* L., *V. Beccabunga* L., *V. Anagallis-aquatica* L. and *V. aquatica* Bernh. in the British Isles. The loan of herbarium material for critical examination, and fresh material would be welcome.

POPULUS

P. G. Beak is working on Poplars and would be glad to receive carefully collected dried specimens of any, *cultivated or wild*, but especially of the Black Poplars (Sect. *Aigeiros*) and their hybrids. Material from suckers, epicormics or abnormal branchlets of any kind is useless (unless correlated with normal material from the same tree). Wherever possible, at least two collections should be made from each tree: (a) flowers or fruits; (b) leaf material of long and short shoots from normal older branches of adult trees, preferably collected not earlier than August.

Notes on habit (angle and type of branching; shape of crown), bark, incidence of disease (especially canker), dates of flowering and foliation (leaves beginning to unfold), and colour of branchlets, petioles and blades, flower parts, etc., are particularly desired and would be much appreciated. Specimens should be sent to: P. G. Beak, 10 Montague Road, Botley, Oxford.

EXCHANGE SECTION

The Council are pleased to announce that Mr A. E. Wade has kindly undertaken to act as Distributor for the 1948 season. New Regulations have recently been drawn up and copies are available on application to the Hon. General Secretary.

As there is now no separate Exchange membership, all those who wish to take part in the Annual Exchange are asked to notify the Hon. General Secretary so that the Society's records may be brought up to date.

An application for exchange of specimens has been received from the National Museum of Prague as the flora of the British Isles is " little represented." Would any members who would like to exchange British material for foreign, please inform the Hon. General Secretary?

THE WEATHER OF 1946 AND ITS EFFECTS

(Adapted by permission from the Report on the Phenological Observations in the British Isles, 1945-6, by Major H. C. Gunton, M.B.E., F.R.E.S.)

The mild spell at the end of 1945 resulted in the early flowering of *Helleborus niger*, and the extreme mildness of mid-January 1946 in the south quickly brought the Hazel into flower. Following this, the cold weather of February and the first half of March effected a slowing down of plant development. Then came the exceptional warmth of late March and of most of April, which had a marked effect on vegetation, causing many spring plants, such as *Anemone nemorosa*, to come into flower three to four weeks before their average dates. The persistent coolness of May and June not only checked the forwardness of the spring flora, but brought about a gradual change to average or even late conditions in the south. May was warm and very sunny in the north, where June also behaved better than it did in the south. Although the warm spell early in July caused some recovery in the dates of flowering, there was a definite falling off later in the month, and the subsequent inclement conditions in August and September caused the plant season to end with considerable lateness.

E. N.

NOMENCLATURE AND CORRECTIONS TO BRITISH PLANT LIST

By A. J. Wilmott.

The following corrections are almost all necessitated by entries in other parts of this *Report*. The genera *Sorbus*, *Odontites*, and *Vulpia* have been accepted, but the necessary revisions of *Pyrus*, *Bartsia*, and *Festuca* are not yet ready for printing, and must follow later.

35 **NASTURTIUM.**

1 **officinale**

1 × 1(2) × **microphyllum**—*cf. Plant Notes.*

2 **microphyllum** (Boenn.) Rchb.—1832: *Fl. Germ. exc.*, 683; 1837: *Icon. Fl. Germ.*, *2*, 15, t. L f. 4360 (" planta e manu cl. auctaris "), *N. officinale* [var.] *β. microphyllum* Boenn. 1824: *Prodr. Fl. Monast.*, 195. *N. uniseriatum* Howard & Manton, 1946—see *Plant Notes.*

39 **CARDAMINE.**

8 *latifolia* Vahl—see *Plant Notes.*

67 **HUTCHINSIA.**

1 petraea (L.) R. Br.—*Lepidium petraeum* L. 1753: *Sp. Pl.*, 644.

80 **RAPHANUS.**

1 **Raphanistrum**

d. **hispidus** Lange—1866: *Pug. Pl. Hisp., IV*; *Kjoeb. Vidensk. Meddel., 1865*, 81 (reissue p. 276). Lange's use of the Latin word "forma" may not indicate that the epithet should not be regarded as of varietal rank. In 1880 (*Prodr. Fl. Hisp.*) we read "Variat petalis luteis . . . Ex Hispania hucusque non pisi formam floribus albis . . . vidimus," and "*hispidus*" is again listed merely as "*β*".

128 **ERODIUM.**

3 **cicutarium**

f. **pimpinellifolium** (Sibth.) DC.—1824: *Prodr.*, *1*, 646. *E. pimpinellifolium* Sibth., 1794: *Fl. Oxon.*, 211.

127 **GERANIUM.**

7 **pyrenaicum**

b. **pallidum** (Druce) comb. nov.—see *Plant Records.* The intraspecific units in *B.P.L.* have so far been treated uniformly as *varieties.*

129(2) *PELARGONIUM.*

1 *Capitatum* Solander in Ait.—see *Plant Notes.*

152 TRIGONELLA.

1 **ornithopodioides** (L.) DC.—*Trifolium* [*M.*] *ornithopodioides* L., 1753: *Sp. Pl.*, 766.

153 MEDICAGO.

6 **minima**

f. **viscida** Koch—Native as well as alien, see *Plant Records*.

185 RUBUS.

16(2) **pullifolius** W. Watson—see paper following.

86(2) **Daltrii** Edees & Rilstone—see *Plant Notes*.

189 POTENTILLA.

9 **erecta** (L.) Raeuschel—1797: *Nomenclator bot.*, ed. 3, 152: Hampe, 1837: *Linnaea*, *11*, 50.

190 ALCHEMILLA—*cf.* Rothmaler, 1937: *Fedde Rep.*, *42*, 164-169.

2 **xanthochlora** Rothmaler—1937: 167. *A. pratensis* auct. angl., haud *A. vulgaris* ["var."] "*A.*" *pratensis* Schmidt, 1794: *Fl. Boëm. inch.*, *Cent. 3*, 88 ("folia supra pubescentia")

4 **vestita** (Bus.) Raunkiaer—1906: *Dansk Exkursionsfl.*, ed. 2, 145. *A. filicaulis* f. *vestita* Buser, 1893: *Bull. Herb. Boiss.*, *1*, app. ii, 23. *A. minor* auct., haud Huds. *A. pseudominor* Wilmott (see *B.E.C. 1941-2 Rep.*, 517).

5 **monticola** Opiz ap Bercht. & Opiz—1838: *Ökon.-Techn. Fl. Bohmen*, *2* (*1*), 13; Rothmaler, 1937: 167. *O. pastoralis* Buser, 1891: *Notes sur quelques Alchem.*, 18.

8 **glabra** Neygenf.—1821: *Enchir. Bot. Siles.*, 67; *Rothmaler*, 1937: 168. *A. alpestris* (Schmidt) Buser, 1893: in Magnier *Scrin.*, *fasc.*, *12*, 282. *A. vulgaris* ["var."] "*A.*" *alpestris* Schmidt, 1794: *Fl. Boëm. inch.*, *Cent. 3*, 88.

194 ROSA.

5 **stylosa**

d. **systyla** (Bast.) Baker—1871: *Journ. Linn. Soc. Bot.*, *11*, 239. *R. systyla* Bast., 1812: *Suppl. Fl. Maine-et-Loire*, 31.

7 **canina** (see *1943-44 Rep.*, 662).

m. **sylvularum** (Rip.) W.-Dod—1931: *Revis. Br. Ros.*, 36. *R. sylvularum* Rip. ap. Déségl., 1877: *Cat. Ros.*, 164. *R. vulgaris* [spp. *canina*] var. *silvularum* (Rip.) Rouy in Rouy & Camus, 1900: *Fl. Fr.*, *6*, 302.

195 × 196 ×*CRATAE-MESPILUS* E. G. Camus, 1899: *Journ. de Bot.*, *13*, 326.

1 *grandiflora* (Sm.) Camus—1899: *loc. cit.* *Mespilus grandiflora* Sm., 1804: *Exot. Bot.*, *1*, 33, t. 18. ×*Crataego-mespilus grandiflora* (Sm.) Bean; see *Plant Notes*.

+*Crataego-mespilus* Simon [1899?]: *Prix-courant pour la Saison 1899-1900 des Arbres* . . ., 41, [with description] is the correct name for graft-hybrids between Hawthorn and Medlar, but is not correct for the natural hybrids. If Simon's catalogue of plants for sale was unpublished—there is no indication of price on it—the authority for the name is Simon ex Bellair, 1899: *Rév. Horticole, 71*, 482. As the Medlar is so rare as a native plant it seems doubtful if the records of the hybrid refer to plants of native origin, but it is possible that the Medlar parent was in a garden and the Hawthorn wild; further evidence on this point would be welcome.

196 **CRATAEGUS.**

1 **monogyna**

l. *xanthocarpa* Lange—see *Plant Notes.*

199 **SAXIFRAGA.**

27(2) *Cymbalaria* L.—

b. *Huetiana* (Boiss.) Engl. & Irm.—1916: *Pflanzenreich, 4 (117)*, pt. 1, 203. See *Plant Notes.*

216 **MYRIOPHYLLUM.**

5 *verrucosum* Lindb.—see *Distributor's Report.* A paper on this will appear in *Watsonia.*

274 **ANGELICA.**

1 **sylvestris**

a. **vulgaris** Fisch., Meyer, & Avé-Lallemant—1842: *Index nonus Sem. Hort. Petrop.*, 59.

b. **decurrens** Fisch., Meyer, & Avé Lallemant—1842, l.c.

287 **SAMBUCUS.**

4 *canadensis* L.—1753: *Sp. Pl.*, 269.

288 **VIBURNUM**

1 **Opulus**

b. **xanthocarpum** Spaeth—[1913]: ["*Cat.*"] 1912-13, 137; Rehder, 1927: *Man. Cult. Trees and Shrubs*, 810; Bailey, 1939: *Stand. Cycl. Hortic.*, 3463; [Endl., 1842: *Cat. Hort. Acad. Vindob., 1*, 460, *nomen solum*]. *V. Opulus* var. *flavum* Horwood, 1933: *Fl. Leic. and Rutland*, 375—correction noted by N. Y. Sandwith, see *Plant Notes.* Spaeth's triverbal name is that of a variety, as on p. 69 he has "Verschiedene Rosenarten, Abarten und Bastarde," and it is only the triverbal names such as R. "lucida alba" that can correspond to his "Abarten."

324 FILAGO.

5 **minima**

b. **supina** (DC.) Rouy—1903: *Fl. France, 8*, 176; collaboration with Camus ended at p. 130, see p. v. *Gnaphalium montanum* (var.) *β supina* DC., 1805: *Fl. France*, 136. From J. P. M. Brenan.

347 *HELIANTHUS.*

[10 *lenticularis* Dougl. " is a synonym of *H. annuus* and should be deleted "—from J. E. Lousley.]

378 ARTEMISIA.

21 *Verlotorum* Lamotte—1877: *Assoc. franç. Avanc. Sci.* (Clermont Ferrand, 1876), 511; *Fl. Plat. Centre Fr.*, 400. See *Plant Records*; an account of this species will be given later.

396 CIRSIUM.

3 **helenioides** (L.) Hill. For those who unite *C. helenioides* (L.) Hill and *C. heterophyllum* (L.) Hill, the citation of varieties is:—

a. **integrifolium** (Gaud.) comb. nov.—*C. heterophyllum* var. *integrifolium* Gaud., 1836: *Syn. Fl. Helvet*, 715 [edited posthumously by Monnier].

b. **legitimum** (Gaud.) Sledge—in *Distributor's Report*. *C. heterophyllum* var. *legitimum* Gaud., 1836: *loc. cit.*

4 **acaulis** (L.) Scop.—*Carduus acaulos* L., 1755: *Fl. Suec.*, 281 (nr. 722). *Cnicus acaulis* L., 1763: *Sp. Pl.*, ed. 2, 1156.—It seems questionable whether or no "*acaulos*" should be treated as a typographic error, as Linnaeus uses "*acaulis*" in his definition in all his works. The variant "*acaulos*" is from "Carlina acaulos, minore purpureo flore. *Bauh. pin.*, 380," cited by Linnaeus in 1755, but it would appear that Linnaeus regarded it as an orthographic (or even possibly typographic) error. It may be conjectured that Linnaeus added the specific epithets after writing his accounts of his species, and here used the variant he had written last. In his other references he uses " acaulis."

405 CENTAUREA.

39 *moschata* L.—1753: *Sp. Pl.*, 909 (without initial capital).

422 LEONTODON.

1 **hispidus**

× **Leysseri**—see *Plant Notes*.

3 **Leysseri**

b. **lasiolaena** (Bisch.) comb. nov. ?

425 LACTUCA.

8 *macrophylla* (Willd.) DC.—1837: *Prodr.*, *7*, 248 (as to name only); Torrey & Gray., 1843: *Fl. N. Amer.*, *2*, 499. *Sonchus macrophyllus* Willd., 1804: *Sp. Pl.*, *3*, 1519.

435 CAMPANULA.

13 *alliariifolia* ("alliariaefolia") Willd.—see *Plant Notes.*

511 CALYSTEGIA.

1 **sepium** (L.) R. Br.

b. *americana* (Sims) Hylander—1941: *Bot. Not.*, 128. *Conv. sepium* var. *Americanus* Sims, 1804: *Bot. Mag. 19*, t. 732. *Conv. sepium* var. *incarnatus* Sweet, 1830: *Hort. brit.*, ed. 2, 370, sec. Tryon, 1939: *Rhodora*, *41*. *Calystegia sepium* var. *rosea* Choisy in DC., 1845: *Prodr.*, *9*, 433,—"nom illeg. (ob. cit. *Bot. Mag.*, t. 732"). *Conv. sepium* var. *coloratus* J. Lange, 1864: *Haandb. danske Fl.*, ed. 3, 176. Hylander thinks it probable that in Europe this is nothing but an escape.

2 *sylvestris* (Willd.) R. & S.—see *Plant Notes. Convolvulus inflatus* Desf., 1804: *Tabl. Ecole Bot.* [noms des plantes cultivées dans le jardin et dans . . . Muséum d'Histoire naturelle], 74, *nomen nudum.* " Hort. Paris " ex Poiret, 1813-1814: *Encycl. Meth.* (Lamarck), *Botanique*, *Suppl.*, *3*, 460, " ne me paroît être qu'une variété due *convolvulus sepium*, remarquable par son calice plus renflé; il croit dans l'Amérique septentrionale." If this is regarded as adequate description, the name will be *Calystegia inflata* (Desf.) comb. nov., but no type could be found in Herb. Paris [Herbb. Lamarck or Desfontaines] for me to examine [Feb. 1947], and in view of the habitat indicated it is best left at present as *nomen dubium.*

532 LINARIA.

2 *purpurea* [for var. *rosea* see *Plant Notes*].

543 VERONICA.

18 **persica**—see Drabble & Little, 1931: *Journ. Bot.*, *69*, 203-204.

a. **Aschersoniana** (Lehm.) Drabble & Little—1931: 204. *V. Tournefortii* subsp. *Aschersoniana* Lehm., 1909: [*Zeits. indukt. Abst.*, *2*, 167, *nomen nudum*]; *O.B.Z.*, *59*, 249-256.

b. **Corrensiana** (Lehm.) Drabble & Little—1931: 204. *V. Tournefortii* subsp. *Corrensiana* Lehm., 1909: *loc. cit.*

c. **Kochiana** (Godr.) Drabble & Little—1931: 204. *V. Buxbaumii* var. *Kochiana* Godr., 1843: *Fl. Lorr.*, *2*, 164.

545 EUPHRASIA.

18 **confusa**

f. **albida** (Pugsl.) comb. nov.—*E. confusa* forma *albida* Pugsl., 1930: *J. Linn. Soc. Bot.*, *48*, 511.

558 MENTHA.

5 *crispa* L.—1753: *Sp. Pl.*, 576; delete ( ).

596 *AMARANTHUS*—*vice Amarantus*, see Sprague, 1928: *Kew Bull.*, 287-288.

9(2) *blitoides* S. Wats.—see *Plant Notes.*

9(3) *acutilobus* Uline & Bray—see *Plant Notes.*

600 CHENOPODIUM.

26 *carinatum*

b. *holopterum* (Thell.) Asch.—see *Plant Notes* in note on the following.

26(2) *pumilio* R. Br.—see *Plant Notes.*

615 POLYGONUM.

15(2) **microspermum** Jord. ex Boreau—1857: *Fl. Centr. Fr.*, ed. 3, *2*, 560. An account of this will be given later.

36 *pensylvanicum* L.—1753: *Sp. Pl.*, 359.

b. *laevigatum* Fernald—see *Plant Notes*, and *Distributor's Report* for 1946.

618 RUMEX.

2 **longifolius** DC.—see *Plant Notes.*

650 SALIX.

3 **alba**

c. **vitellina** Stokes—1812: *Bot. Mat. Med.*, *4*, 506; Séringe, 1815: *Essai*, 83. The authority in *B.P.L.* is correct, but the later authority is often used.

10(2) **cinerea** L.—For differences between this and *S. atrocinerea* Brot. see Guinier, 1911: *Bull. Soc. bot. Fr.*, *58*, ix-xxi; and Bedford Excursion. An account of the differences from *S. atrocinerea* Brot. will be given in *Watsonia.*

718 JUNCUS.

26 *pallidus* R. Br.—1810: *Prodr. Fl. Nov. Holl.*, 258. (Australasia). *Confer* Bedford Excursion; an account of these Australasian rushes is in preparation by Dr J. G. Dony.

745 HELEOCHARIS.

2 **uniglumis**

b. **Watsoni** (Bab.) Richter—1890: *Pl. Europ.*, 142. The reference given by Richter is erroneous.

753 CAREX.

17×23 ×**Tornabeni** Chiov.—1927: *Ann. di Bot.*, *17*, 83—see *Plant Notes.*

57×59 ×**Kneuckeriana** Zahn—1890: *Oest. bot. Zeits.*, *40*, 412 ("*nemorosa* × *remota* ")—*C. axillaris* Good., 1794: *Trans. Linn. Soc.*, *2*, 151, t. 19, f. 1; non Linn., 1763: *Sp. Pl.*, ed. 2, 1382. ?*C. Crepini* ["*C. remota* × *vulpina*"] Torges, 1893: *Mitt. Thür. bot. Ver.*, *N.F. 3/4*, 62; see *B.E.C. 1938 Rep.*, 203-4 (1942).

754 *PANICUM*—[No native species].

2 *capillare*

b. *occidentale* Rydb.—see *Plant Notes.*

2(2) *dichotomiflorum* Mich.—see *Plant Notes.*

794 AVENA.

5(3) *byzantina* C. Koch—see *Plant Notes.*

819 DACTYLIS.

1 **glomerata**

a. **vulgaris** Schlechtendal—1823: *Fl. berol.*, *1*, 69.

b. **collina** Schlechtendal—1823: *Fl. berol.*, *1*, 69. *Vice* var. *abbreviata* (Bernh.) Drej., 1838: *Fl. exc. Hafn.*, 44 ("*adbreviata*"). *D. abbreviata* Bernh. ex Rchb., 1834: *Icon.*, *Cent. 11*, 24, t. 1522; 1850: *Icon. Fl. Germ.* (*Agrostographia*, ed. 2), 45, t. cxlvii (363).—Correction due to C. E. Hubbard.

820 DESMAZERIA.

1 **marina** (L.) Druce—1912: *Scott. Bot. Review*, *1*, 156. *Festuca marina* L., 1759: *Flora anglica*; *Amoen. Acad.*, *4*, 96. *Poa loliacea* Huds., 1762: *Fl. angl.*, 35—Correction due to C. E. Hubbard.

826 FESTUCA.

18(2) *megalura* Nutt.—see *Plant Notes.*

826×829 ×**FESTULOLIUM.** [Asch. & Graebn., 1902: *Syn. Mitteleur. Fl.*, *2* (*1*), 44, as synonym]; Fournier, 1928: *Fl. compl. Plaine Franç.*, 588.

4×1 **loliaceum** (Huds.) P. Fournier—1935: *Les Quatre Fl. France*, 81 [from the photographically reproduced ed. 2, 1946]. ×*Festulolium adscendens* (Retz.) Fournier, *op. cit.*, 588; [Aschers. & Graebn., 1902: *Syn. Mitteleur. Fl.*, *2* (*1*), 768, as synonym]. *Festuca loliacea* Huds., 1762: *Fl. Angl.*, 38 [" Curtis, 1791, non Huds.," according to Aschers. & Graebn., *l.c.*].—delete entry under 826/4.

827 BROMUS.

17 **commutatus** Schrad.—1806: *Fl. Germ.*, *1*, 353. *B. pratensis* Ehrh., 1791: *Beiträge*, *6*, 84, *nomen nudum*; Ehrh. ex Hoffm., 1800: *Deutsch. Fl.*, ed. 2, *1*, 53; non Lamarck, 1785: *Encycl.*, *1*, 468 (see *Chron. Bot.*, *5*, 439: 1939).

c. **pubens** Wats.—1844: *Phytol.*, *1*, 1062. *Vice* var. *pubescens* Wats., 1874: *Lond. Cat.*, ed. 7, 27, *nomen nudum*—corrections due to C. E. Hubbard.

19(3) **Thominii** Hardouin—1833: *Congr. Sci. Franc.*, *1*, (Caen), 59; (1848: *Cat. Pl. Calvados*, 310, under *B. mollis*)—delete 19 i.

832 *TRITICUM.*

3 *turgidum* L.—1753: *Sp. Pl.*, 86.

b. *jodurum* (Alef.) Koern. & Wern., 1885: *Handb. Get.*, *1*. 58. *T. vulgare* ["var."] *jodura* Alef., 1866: *Landw. Fl.*, 326.

3(2) *compactum* Host—1809: *Gram. Austr.*, *4*, 5, t. 7.

b. *Humboldtii* (Koern.) Koern. & Wern., 1885: *Handb. Getr.*, *1*. 52, t. I, f. 4. "*T. vulgare* [var.] 16, *Humboldtii* Koern., 1873: *Syst. Übers. landw. Cer. Poppelsd.*, 12".

856 DRYOPTERIS.

1(2) **Borreri** Newm.—1854: *Hist. Brit. Ferns*, ed. 3, 189, *vice* 1c—a cytological species.

1(3) **abbreviata** (DC.) C. Chr.—1905: *Index Filic.*, 250, or *comb. nov.*? *Polystichum abbreviatum* DC., 1805: *Fl. Fr.*, *2*, 560. C. Christensen (1905) cites "Newm., **1851**, app. XXI," but Newman there calls it "*Lophodium abbreviatum*" (DC.). The error is not corrected in either supplement to the *Index Filicum*. If for this reason the combination is regarded as invalidly published—for it is a book of references rather than a systematic work—the specific name appears to be *comb. nov.* Another cytological species.

859 CETERACH.

1 **officinarium**

b. **crenatum** Moore—1855: *Ferns Gt. Brit. and Ireland. Nature-printed* [folio edition], text to pl. XLIIIA: Milde, 1865 (as "var. *crenata* Milde"): *Die Höheren Sporenpflanzen Deutschl. u. Schw.*, 42.

PLANT NOTES

(Including Systematic Abstracts)

[In the case of direct contributions the name of the author of the note is printed in small capitals. When the note is an abstract, the author's name is followed by the reference, either in full or by date referring to the Bibliography. The abstractor is indicated as under "Abstracts from Literature."

Note to Contributors. Will those sending in Plant Notes please keep to the form adopted in the recent Reports. If the note comes from a publication, and several notes are extracted from a single paper, first set down the "reference" in the same form as is adopted in the published "References" in the Reports, i.e., author's surname, comma, initials, semicolon, date of publication, colon, title of work (and, if from a serial publication) semicolon, followed by the name (abbreviated) of the serial, the volume, and pages (first and last). The Plant Note itself starts with the *B.P.L.* number and name of the genus or species concerned. If the note concerns one vice-county only, start the note with this information as is done with Plant Records. It would be a great convenience if all notes were prepared by different contributors on slips of the same size, that preferred being 8 inches by 5 inches, the long edge to be treated as the top of the page.—ED.]

3/2. ANEMONE NEMOROSA L. DALLMAN, A. A. (1945; *N.W. Nat.*, *20*, 273) gives notes on its altitudinal range.—[S.]

35/1(2). **Nasturtium uniseriatum** Howard & Manton. Howard, H. W., and Manton, I. (1946: Autopolyploid and Allopolyploid Watercress with the Description of a New Species. *Ann. Bot.*, n.s., **10**, p. 1-14) have produced an autotetraploid from diploid watercress (*Nasturtium officinale* R. Br.) and have thus shown that the wild tetraploid watercress previously described by Manton is an allotetraploid. This latter plant for which the name *N. uniseriatum* is proposed is further shown to have derived half of its chromosomes from diploid *N. officinale*; the other half are suspected to have come from a species of *Cardamine*. Diagnoses of the new species and the other two wild forms of watercress are given as follows:—

Nasturtium officinale R. Br. sensu stricto. Perennial aquatic herb with glabrous pinnate leaves. Stem rooting at the nodes. Leaflets 3-6 pairs. Racemes short, flowers small with white petals which are twice as long as the sepals. Fruit with the double row of seeds very distinct. Seeds compressed, suborbicular with the testa having about 25 large depressions on each side. Mean stomatal index for lower epidermis of leaf 17.7. Chromosome number 2n=32.

Nasturtium uniseriatum sp. nov. Differs from the former in having longer and narrower fruits in which the seeds are arranged in a single row. Also the testa of the seeds has about 100 small depressions in each side. Stomatal index for the lower epidermis of leaf 11.2. Chromosome number 2n = 64.—[H.A.H.]

35/1×1(2). **Nasturtium officinale** × **uniseriatum**. This hybrid may be recognized by its very short fruits which contain less than one good seed per fruit. Stomatal index of lower epidermis of leaf 15.1. Chromosome number 2n = 48.—[H.A.H.]

†39/8. **Cardamine latifolia** Vahl. 69, Westm.; naturalised in rocky streams in two spots near Ambleside, 1945, D. P. Young, det. A. J. Wilmott; bank of R. Rothay near the town rubbish dump, Ambleside, 1946, H. A. Baylis, det. and comm. A. J. Wilmott; seen and collected from an island where the Rothay meets the Brathay, in May 1942, E. C. Wallace.

A robust glabrous perennial with thick nodulose elongated rootstock and stems 30-60 cm. long simple or branched at the top. Leaves large, with large orbicular terminal leaflet and (1)2-3 pairs of smaller oval (rounded) lateral ones. Flowers large, reddish-lilac; petals spreading, three times longer than the sepals; anthers yellow. Fruiting raceme rather dense; pedicels ascending, as long as the ascending winged siliques; style short, obtuse; seeds not winged. Native by springs, ditches and streams in southern France, and westward from the central Pyrenees through northern Spain to Galicia.—A. J. Wilmott.

80/1d. **Raphanus Raphanistrum** L. β [apparently " forma "] **hispidus** Lge., Lange, 1866: Pug. Pl. Hisp., iv, in *Kjoeb. Vidensk. Meddel.*, 1865, p. 81. *R. Raphanistrum* L. subsp. *segetum* (Baumg.) Clavaud, subvar. *arvensis* (Rchb.) Thell. forma *hispidus* (Lge.) Thell. in Hegi (1918), *Ill. Fl. von Mittel-Europa*, 4 (1), 278. *R. Raphanistrum* L. var. *hispidus* Lge. ex Willk. et Lge. (1880): *Prodr. Fl. Hispan.*, *3*, 4, p. 749; O. E. Schulz (1919) in Engler, *Pflanzenreich*, 4 (105), p. 200. *R. Raphanistrum* L. var. *scabrirostris* Opiz ex Čelak. (1875), *Prodr. Fl. Böhm.*, iii, 471. *R. Raphanistrum* L. β *hispida* [" v. hispida " in the Index on p. 906] Bergstedt ex Lge. (1886-8): *Danske Fl.*, ed. 4, p. 625. *R. Raphanistrum* L. var. *dasycarpus* Boenn. ap. F. Wilms., jun., in *Westfal. Prov.-Verein f. Wiss. Kunst. Jahresb. bot. Sekt., 1880*, 10 (1881), fide Schulz. *Raphanistrum segetum* Baumg. var. *dasycarpum* Beckh. (1893), *Fl. Westfal.*, 142, fide Schulz.

Attention is drawn to this form in which the fruit has stiff, ascending subconical hairs, especially on the beak. 17, Surrey; stubble field, Horsley, October 1946, N. Y. Sandwith [Ref. No. 3160], petals white with dark purple-black veins, growing with other white-flowered plants with glabrous fruits. Quite probably common, although no specimens were detected in the large series of *R. Raphanistrum* in the Druce Herbarium. The hispidity is a matter of degree, while it is unlikely that there is any correlation between this character and any given petal colour. There are specimens with hispid fruits in Herb. Kew. from Middlesex (Southgate, 1858, F. Y. BROCAS), Oxon. (near Oxford, Dr G. LLOYD; Shotover Hill, C. E. HUBBARD [Ref. No. 12,437]) and "near Edinburgh" (without collector's name), all of which apparently had yellow petals.

Lange described his plant as with the petals "pallida, venis atrofuscis notata," from San Sebastian in N. Spain, while another specimen from Syria was said to be the same form. He gave certain other characters for distinguishing it, but these were ignored by Thellung and by Schulz in adopting his name. Rather curiously, in the fourth edition of his *Danske Flora*, Lange gave the same epithet to a similar form, attributing the authorship to Bergstedt, a correspondent, and describing it as with "skulperne stivhaarede" [stiffly hairy fruits]. It is not clear whether he had forgotten his Spanish and Syrian form, or intended to differentiate the Danish one but inadvertently gave it the same name. The application to British specimens of the name var. *scabrirostris* Opiz ex Čelak. is quite certain. An analogous variety of *R. sativus* L. was recorded and discussed by Mr Brenan (1942), in *B.E.C. 1939-40 Rep.*, pp. 251-2.—N. Y. SANDWITH.

88/4. VIOLA RIVINIANA Rchb. Abnormality with five flowers at the top of a single peduncle: 12, N. Hants.; Alice Holt Wood, near Farnham, 27th April 1946, Mrs Dudley Palmer (specimen brought to the Natural History Museum by C. de Worms). There is no mention of anything like this under any species of *Viola* in Penzig (*Pflanzen-Teratologie*, 2) but under *Viola canina* (p. 129) he notes a record by J. Camus in 1884 of a case where there was a sort of outer calyx, i.e., a whorl of bracteoid leaves under the normal calyx. He also refers to a record by Kirschleger (1844) of *Viola silvestris* where the flower was terminal (very unusual in *Violaceae*) consisting of calyx, two small petals and a new long-stalked peloric double flower from its centre lacking stamens, pistil and spur. Of the five flowers on the present specimen two were large, two small, and one fallen (the pedicel remains) before I received the specimen. The identification given is probably correct, but the specimen had been in water in a glass tube for three days and the best flower was not easy to examine without endangering the preservation of this unique curiosity.—A. J. WILMOTT.

†127/6. GERANIUM ENDRESSI Gay. An account of this plant and its occurrence in Britain is given by A. A. Dallman (1946: *N.W. Nat.*, *21*. 36-39).—[S.]

†127/6. GERANIUM ENDRESSI J. Gay and G. VERSICOLOR L. (*G. striatum* L.). In discussing gatherings of *Geranium Endressi* J. Gay from Goonbell, West Cornwall (1928: *Journ. Bot.*, pp. 44-46), Dr Turrill pointed out that dried specimens of *G. Endressi* and *G. versicolor* are not easily separated without complete material and gave the distin-

guishing characters as follows:—" The elongated slender rhizomes and greater amount of lobing of the leaf in *G. Endressi* contrast with the shorter thick rhizomes and less lobed leaf of *G. striatum*. Since these characters separate plants of distinct geographical distribution, in the truly native state, I must consider there are two species involved."

For field purposes I think it may be added that the two species differ considerably in their growth. I do not remember to have seen any very extended growth of *G. versicolor*. As it occurs in Cornwall it is a woodland species, small clumps being " dotted about " on shady banks. I have only once seen it away from trees and in full sun. There, at Rejerrah (see Davey, *Flora of Cornwall*, p. 97), it grew on a grassy roadside waste over which it might easily have spread, but it persisted merely as a small circular clump.

G. Endressi behaves very differently. At Goonbell on a similar roadside strip it soon filled the space from end to end, though the amount of growth was later reduced by an invasion of brambles. About a dozen years ago I took a few roots from Goonbell and planted them in a small orchard and later put in some roots from the Isle of Wight, sent me by Mr J. W. Long, in another spot about fifty feet away. Both plantings flourished and in a few years grew to meet.

Archangeli in his *Flora Italiana* gives *G. versicolor* as a woodland plant. I do not know if the gatherings of *G. Endressi* made by Endress on Mt. Béhorléguy and Mt. Apanice in the Pyrenees were from open sunny spots or from woodland, but *G. Endressi* in Cornwall is perfectly at home in full sun, while *G. versicolor* seems less tolerant of such situations.—F. RILSTONE.

†129(2)/1. **Pelargonium capitatum** Soland. in Ait., 1824: *Hort. Kew*, ed. 1, ii, 425. 9, Dorset. A seedling found in a mangold field by Mrs Tracey, of Wimborne, and propagated in a greenhouse, was determined by Dr Turrill as this species, with unusually small petals. It is regarded as one of the ancestors of the Show *Pelargoniums*, but is now rarely seen in gardens (1946: *J. Roy. Hort. Soc.*, *71*, xlvi).—[D.P.Y]

155/18. TRIFOLIUM SUFFOCATUM L. Good, R. D'O. (1946: *Naturalist*, *819*, 133-137) records this species from Yorkshire and discusses its distribution in Britain. A note on geocarpy in the *Leguminosae* is added.—[S.]

173. ONOBRYCHIS (L.) Mill. Fyfe, J. L. (1946: Polyploidy in sainfoin; *Nature*, *158*, 418) shows that sainfoin (*Onobrychis sativa*), a tetraploid species with 2n = 28 chromosomes compared with 2n = 14 in *O. Caput-galli* Lam., is either an autotetraploid or an allotetraploid of the *Primula kewensis* type derived by chromosome doubling of a hybrid with a high degree of chromosome pairing; it is not an allotetraploid of the *Raphano-brassica* type derived by chromosome doubling of a hybrid with little or no pairing.—[H.A.H.]

185/86(2). **Rubus Daltrii** Edees & Rilstone (1946: *N.W. Nat.*, *20*, 161-163). From our usual *R. infestus* this differs in the stem prickles being mostly straight and patent, while from both it and the var. *virgultorum* it differs essentially in the much weaker prickles—not stout-based but quickly slender from a long compressed base, in the glabrous or nearly glabrous undersides of all leaflets both on stem and panicle, the absence of any but the slightest trace of felt on the panicle (except, of course, on the sepals) the star-like flowers with long narrow petals, and the long stamens far exceeding the styles. In appearance it resembles some of the forms which have been put under *R. hystrix*, but the armature is less uneven and the stalked glands are mostly short, those on the panicle often very short.—F. RILSTONE.

195×196. ×CRATAEGOMESPILUS, Jouin in *Le Jardin*, Jan., 1899; Rehder, *Man. Cult. Trees and Shrubs*, *ed. 2*, p. 359 (1940). Graft hybrids or sexual hybrids between *Crataegus* and *Mespilus germanica* L. Three have been described.—[N.Y.S.]

195×196/1. ×CRATAEGOMESPILUS GRANDIFLORA (Sm.), Bean, *Trees and Shrubs hardy in British Isles*, i, 418 (1914). *Mespilus grandiflora* Sm., *Exot. Bot.*, i, 33, t. 18 (1805). (*Crataegus oxyacanthoides* Thuill. × *Mespilus germanica* L.). A presumed natural hybrid, found wild in France and long known in cultivation in Britain. Deciduous tree up to 30 ft. high, resembling the Medlar but with the leaves unequally serrulate, often deeply lobed on young sterile shoots, and with smaller flowers and fruits, often in pairs or threes. Fruit yellowish-brown, globose-ovoid, up to 1.5 cm. diam., with mealy flesh and two hard stones. 17, Surrey; Bullswater Common, two large trees on roadside not near houses, Sept. 1946, R. GRAHAM and N. Y. SANDWITH. See also Horwood and Noel, *Fl. Leics.*, p. 227 (1933), for a record under the name *Crataemespilus grandiflora* Camus.—N. Y. SANDWITH—but see pages 249-250.—ED.

196/1*l*. CRATAEGUS MONOGYNA Jacq. var. **xanthocarpa** Lange, *Rev. Spec. Generis Crataegi*, 39 (1897) (vice var. *aurea* Loud. of *B.P.L.*). *Oxyacantha monogyna* (Jacq.) var. *xanthocarpa* Roem., *Fam. Nat. Regn. Veget. Synops. Monogr.*, *3* (" Rosiflorae "), 108 (1847). ?*Crataegus chlorocarpa* Gdgr. in *Bull. Soc. Bot. France*, *18*, 451 (1871). *C. monogyna* Jacq. var. *aurea* (Hort. ex Loud.) Druce in *B.E.C. 1911 Rep.*, 20 (1912) (only as to the Tweedside specimens cited).

6, N. Somerset; one tree by the Cam Brook near Midford, 1946, Miss F. M. BARTON. Miss Barton kindly indicated the locality to Mr N. D. Simpson, who, after finding the tree himself, gave me most detailed directions, in the light of which I was enabled to visit it myself in September 1946. The tree was well laden with haws which turn from pale greenish to lemon-yellow when mature, with no suggestion of red; when dried they assume an odd brownish-yellow hue. Specimens of the Midford tree are in Herbb. Simpson, Brenan and Kew.

79, Selkirk; Tweedside, near Galashiels, 1911, Miss I. M. HAYWARD (Herb. Druce). The remark about the " berries ranging from lemon to crimson " made when this plant was distributed through the Exchange Section (as *C. Oxyacantha* L. var. *aurea* Hort.) seems an extraordinary one, suggesting either somatic mutation on the tree or else heterozygousness with imperfect dominance of the " red " or " yellow " factors.

A further record (or records) for Leicestershire, presumably referring to our plant, will be found in Horwood and Noel. *Fl. Leics. & Rutland*, 226 (1933), under the name " *C. monogyna* Jacq. var. *aurea* Loud."

The nomenclature and synonymy of this interesting variety of hawthorn are much confused, and require some explanation. The matter is further complicated by the fact that there are yellow-fruited vars. of both *C. monogyna* Jacq. and *C. oxyacanthoides* Thuill. to be considered. Both have been in cultivation for a long period, and one at least since before 1770. The striking fruit-colour has invited choice from a restricted number of obviously apt varietal epithets; these have been used and re-used apparently independently, not only by nurserymen and writers on horticulture but by botanists also, usually with scant endeavour either to trace their origins or to verify them when known.

The first use of a varietal epithet unequivocally indicating a yellow-fruited variety of *C. monogyna* appears to be *Oxyacantha monogyna* var. *xanthocarpa* Roem. (1847, see above). The same epithet was used under *Crataegus monogyna* by Lange in 1897, and this is adopted as the correct name for the variety; it should also be noted that Lange makes no reference to its earlier use by Roemer, so that, under *C. monogyna*, the var. *xanthocarpa* will be attributed to Lange, not " (Roem.) Lange." *C. monogyna* var. *xanthocarpa* is also given in all Spaeth's catalogues from 1912-13 onwards (*e.g.*, *Cat. 154* (1912-13), p. 90, *Späth-Buch 1920-1930*, p. 219 (1930)), but the variety is there attributed to Zabel; the reason for this I have failed to discover.

C. chlorocarpa Gandoger, strangely unmentioned by Rouy and Foucaud in their *Fl. France*, is apparently a further synonym, although, according to his key, it comes into a group with leaves discolorous and whitish beneath, a feature certainly not shown by the Midford plant. Although Gandoger remarks that *C. chlorocarpa* approaches *C. Oxyacantha* L., it is clear that by the latter name he intends *C. monogyna* Jacq. The type-specimen of *C. chlorocarpa* was in Herb. P. Chabert (of Lyon), collected at Saint Consource in the Rhône department.

There remains to be considered Druce's adoption of the epithet *aurea* for our plant. *C. monogyna* var. *aurea* Druce was based on *C. Oxyacantha* L. var. *aurea* Hort. ex Loud., *Arb. et Frut. Brit.*, *2*, 829, 866 (fig. 610) (1838), but, from the description and figure of the latter it seems evident that a yellow-fruited var. of *C. oxyacanthoides* was intended, and not *C. monogyna*. This was also the opinion of Ascherson and Graebner who, *Syn. Mitteleur. Fl.*, *6* (*2*), 26 (1906), classify it as *Mespilus Oxyacantha* (L.) Crantz 1. *aurea* (Loud.); they also mention (p. 29) a yellow-fruited form of *C. monogyna* but do not give it a name. Although there is no evidence of it in Loudon, it was acutely recognised by Rehder, *Man. Cult. Trees & Shrubs*, ed. 2, 370 (1940), that Loudon's name is a later homonym of *C. Oxyacantha* L. var. *aurea* Weston, *The Universal Botanist and Nurseryman . . .* , *1*, 78 (1770). Rehder adopts this latter name for the yellow-fruited variety of *C. Oxyacantha* L. [*i.e.*, *C. oxyacanthoides* Thuill.] although from Weston's description ("[Crataegus] virginiensis, baccis aureis ") it is not clear why it should be taken to refer to *C. Oxyacantha* L. rather than *C. monogyna* Jacq.; the mention of Virginia is probably only a " red herring "! In any event it is clear that *C. monogyna* var. *aurea* Druce is invalid and should not be used. It is perhaps worth mentioning that " *Crataegus monogyna aurea* Hort." in *Späth-Buch 1720-1920*, p. 166 (1920), is used to designate a yellow-*leaved* variety of *C. monogyna*.

The name var. *fructu luteo* has sometimes been used in horticultural works for the yellow-fruited variety of *C. monogyna*, but it seems more in the nature of a descriptive phrase than an orthodox varietal name. The Kew *Hand-list of Trees and Shrubs*, ed. 3, 147-8 (1925) has, under *C. Oxyacantha* L. subsp. *monogyna* (Jacq.), both var. *aurea* Loud. and var. *fructu luteo*, perhaps indicating different shades of yellow.

I am indebted to Mr N. Y. Sandwith for several of the references in the preceding account.—J. P. M. BRENAN.

†199/27(2)b. **Saxifraga Cymbalaria** L. var. **Huetiana** (Boiss.) Engl. et Irmsch. in Engler. A., *Pflanzenreich*, *4* (*117*), 1916. *S. Huetiana* Boiss., *Diagnoses plantarum orientalium novarum*, Ser. ii, 72 (1856). An account (with plate) of the occurrence of this plant in Britain is given by A. A. Dallman (*N.W. Nat.*, *21*, 39-41, 1946). It is shown that it has been confused with *S. Sibthorpii* Boiss. and an examination of specimens in Herb Kew by N. Y. Sandwith, whose help with this plant is acknowledged, confirms this.—ED.

†287/4. **Sambucus canadensis** L.—American Elder. 63, S.W. Yorks.; " covering an area of about 50 sq. ft. near the southern precinct wall of Upper Park House, Low Moor, 1946, L. R. A. GROVE. Like *S. nigra*, this has a flat, umbel-like inflorescence, with fruit normally purple-black, but differs in its foliage, the leaflets being usually 7, elliptic to lanceolate, acuminate, bright green, slightly puberulous on the veins beneath; ovary is usually 4-celled; fruit 4-5 mm. across.—A. J. WILMOTT.

288/1b. VIBURNUM OPULUS L. var. **xanthocarpum** Spaeth (var. FLAVUM Horwood). Fruit yellow, the pigment being in the flesh (the stone white). " The other diagnostic characters mentioned by Horwood, *viz.* the size of the fruits and seeds, and the outline of the leaf-lobes

[Horwood and Noel, *Fl. Leicestershire*, 275, 1933] are likely to prove illusory": N. Y. Sandwith (1946: *N.W. Nat.*, *20*, 274). Apparently native in v.-cc. 17, 55, 57.—[Wi.]

314/1. BELLIS PERENNIS L. The anatomy and morphological development of the capitulum is described by Philipson, W. R. (1946: *Ann. Bot.*, N.S., *10*, 257-270, pl. vii).—[Wi.]

380/1. PETASITES HYBRIDUS (L.) G.M. & S. Valentine, D. H. (1946: *The Naturalist*, 817, 45-46) discusses the range of the female plant in Britain and seeks further observations from botanists in Yorkshire and elsewhere.—[S.]

383/7×10. SENECIO SQUALIDUS L. × SENECIO VULGARIS L. var. RADIATUS Koch hybr. nov. Stephenson, T. (1946: *The Naturalist*, 819, 137-138) describes this new hybrid from Devon, with reference to ×*S. Baxteri* Druce.—[S.]

396/2. CIRSIUM VULGARE (Savi) Ten. Arènes, J. (1945: le groupe specifique linnéen du *Cirsium lanceolatum* (L.) Hill, *Nat. Syst.*, *12, 1 et 2*, 16) gives a review of the general characters of the species, a detailed study of its geographical distribution and its subspecies and varieties; a review of the systematic arrangement and discusses the nomenclature and synonyms put forward by previous writers.—[Bibliog., *Bull. Soc. Bot. Fr.*, *92*. 191 (1945)].—[Wa.]

422/1×3. **Leontodon hispidus** L. × **Leysseri** (Wallr.) Beck. Dr K. B. Blackburn, when recording *L. Leysseri* (Wallr.) Beck from Seaton Sluice, 67, Northumb. S., states that a plant was found which proved to be the above hybrid, and is receiving further cytological study (1945: *Vasc. Subst.*, 30, 54-55) —[Wi.]

423. TARAXACUM. Sorensen, Th. (1940: Experimental investigations on species formation in *Taraxacum* (the Vulgaria group). Preliminary Note; *Bot. Tidsskrift*, *45* (*2*), 161-165). Certain elementary species produce new biotypes. 1. Giant form, 2. dwarf forms, 3. normal biotypes well differentiated from the morphological viewpoint, 4. the "sector chimaerae", 5. plants "*inharmoniques*" from the morphological viewpoint.—[*Bull. Soc. Bot. Fr.*, *92*, 190 (1945)].—[Wa.]

†435/13. **Campanula alliariifolia** ("*alliariaefolia*") Willd., 1797: *Sp. Pl.*, *1*, 910; Boissier, *Fl. Or.*, *3*, 902, 1875; H. Clifford Crook, 1937: *Quart. Bull. Alpine Garden Soc.*, *5*, 353, 361; L. H. Bailey, 1938: *Manual Cult. Pl.*, 741; Wilhelm Miller and L. H. Bailey in L. H. Bailey, 1939: *Standard Cyclop. Hortic.*, *1*, 644. *C. macrophylla* Sims, 1806: in *Curtis' Bot. Mag.*, t. 912 (radical leaf untypically hastate). *C. lamiifolia* M. Bieb., 1808: *Fl. Taur.-Cauc.*, *1*, 154 (*fide* Boissier). Alien, native of Asia Minor and the Caucasus. 2, E. Cornwall; side of cutting,

Port Isaac Road railway station, Aug. 1943, Rev. N. E. G. CRUTTWELL (Ref. No. 43/97, in Herb. Cruttwell and Herb. Brenan), det. J. P. M. BRENAN.

A characteristic photograph of *C. alliariifolia* is given by H. Clifford Crook (*op. cit.*, p. 353). There are various earlier printings and editions of the works by Bailey cited above; the dates are given only of those available to me.

This most striking and unusual-looking *Campanula* is a perennial, attaining a height of about 1.2 m. The long-petiolate radical leaves are ovate-cordate to reniform or even hastate, pubescent above and densely grey-tomentose beneath, with rather coarsely and irregularly crenate-dentate margins, somewhat suggestive of those of garlic-mustard, as the specific epithet implies; the cauline leaves are similar, but more shortly petiolate and becoming much smaller upwards. The flowers are shortly pedicellate, borne singly in the axils of more or less reduced bracts, pendent, and aggregated into long, terminal, conspicuously one-sided racemes. The calyx has between each lobe an obvious, reflexed, oblong to lanceolate appendage, equalling or only slightly exceeding the calyx-tube at the flowering stage. The corolla varies in length from about 2-5 cm., and is described by Cruttwell as "cream-white, flushed pink in bud." The stigmas are three, and the ovary trilocular. The capsules are pendulous and dehisce by basal pores to release the small, pale brown seeds, which have a pretty, iridescent sheen.

According to the division of the genus proposed by Boissier (*op. cit.*), this species comes into the Section *Medium* [Tournef.] A. DC. (on account of the basal dehiscence of the capsule), sub-sect. *Triloculares* Boiss. (on account of the trimerous gynaecium); under the subsection its position is further limited by the habit, inflorescence, pedicellate flowers and appendaged calyx.

A comparatively detailed note on this species is given, as Mr Cruttwell and myself also observed in 1943 what is almost certainly the same species at more than one spot, well away from stations or railway-bank gardens, by the main G.W.R. line between Par and Lostwithiel. These observations must be accepted with caution, as they were made from a train, and there has been no opportunity of checking them at closer quarters, but the habit, leaf-shape and drooping white flowers were noted and make a mistake improbable. The probable occurrence of this plant in an apparently naturalised condition at widely separated points, in each instance on a railway-bank, suggests that *C. alliariifolia* may be spreading in Cornwall in the way made familiar to us by *Senecio squalidus* elsewhere. H. Clifford Crook (*op. cit.*, p. 362) remarks about *C. alliariifolia* that "seed provides a ready (often too ready) means of increase." The specimens collected by Mr Cruttwell shed their seeds freely in the herbarium, and the seeds are small, light, and easily scattered by a gentle breath. The tall, rigid stems lift the infructescences above most of the surrounding vegetation and set free their seeds. The powerful wind-currents in the wake of trains would provide a convenient and efficient method of spreading the plant along the railway-banks. It is to be hoped that botanists in Cornwall will be able to make further and more precise observations on the range, maintenance and dispersal of this species.

C. alliariifolia has also been recorded as an adventive on the Continent " am Salève [Grand-Sarrot]", near the Swiss frontier (Schinz & Keller, 1914: *Fl. Schweiz*, ed. 3, *2*, 333), and doubtless, there as here, it is of hortal origin.—J. P. M. BRENAN. [The short note (*B.E.C. 1945 Rep.*, 61, 1947) was misplaced.—ED.]

446/1. ERICA CINEREA L. (as var. ALBA). R. D. Trotter (1946: *J. Roy. Hort. Soc.*, *71*, lxix) found a prostrate albino form in Scotland, which maintained its habit in cultivation.—[D.P.Y.]

478/5. CENTAURIUM TENUIFLORUM (H. & L.) Fritsch. Senay, Pierre (1943: Qu'est-ce que *l'Erythraea tenuiflora?*; *Bull. Soc. Bot. Fr.*, *90*, 181-187) discusses the relationships of this species with *C. umbellatum* and *C. pulchellum* and the probability of its being a hybrid between them.—[Wa.] Its distribution and specific constancy shows that it is not a hybrid even if it may have had hybrid origin. I have seen it in thousands in Spain, where *C. umbellatum* did not grow, and it has a different habitat.—A. J. WILMOTT.

480/1. GENTIANA PNEUMONANTHE L. Simmonds, N. W. (1946: Biological Flora of the British Isles; *Journ. Ecol.*, *33*, 295-307) gives a biological and ecological account. It is suggested that the markedly discontinuous distribution is due in part to lack of suitable habitats in central England, a region of basic soils and intensive agriculture. The failure of the species to occur north of Westmorland and west of Caernarvonshire and Anglesey is perhaps due to climatic limitations and the more mountainous nature of the ground. It is a lowland species with, mainly, a rather continental distribution. In Britain it is limited to one type of damp acid heathland.—[Wa.]

497/4. SYMPHYTUM PEREGRINUM Ledeb. Senay, Pierre (1940: *Symphytum peregrinum* Ledeb. et ses hybrides avec *S. officinale* L.; *Bull. Soc. Bot. Fr.*, *87*, 313-322) discusses the confusion of this species with the related *S. asperum* Lep. The varieties of *S. officinale* and the hybrids between it and *S. peregrinum* are reviewed.—[Wa.]

†511/2. **Calystegia sylvestris** (Willd.) R. & S. During recent years botanists have become increasingly aware that we have in England a *Calystegia* allied to *C. sepium* (L.) R. Br. but most easily distinguished from it by the larger flowers (up to 7 cm. in corolla length as compared with 3.5-6 cm.), and the very broad inflated bracts which completely envelop the calyx segments and even overlap. This second plant is usually found on rubbish dumps and near gardens though it may sometimes occur in more remote places. Its distribution sug-

gests that it may be an alien and this in fact appears to be the case. The purpose of the present note is to record an interesting statement made by Mr B. T. Lowne, but in order to do so it has proved necessary to inquire into the botanical history and nomenclature of the species.

The plant was described as *Convolvulus sylvaticus* by Waldstein & Kitaibel, *Pl. rar. Hung.*, *III*, 290, *t.* 261. The plate is not a perfect representation of the plant which we have in England but there can be little doubt that, unless some very critical " split " has yet to be made, it illustrates the same species. The work appeared in parts and Stearn (ex Gilmour, *Kew Bulletin* for *1937*, 498) has shown that Plates 251-260 (including the text to Plate 261) were probably issued late in 1809 or at least before July 1810, while according to a note by him in the Kew copy, Plates 261-270 were issued in 1810 or 1811.

In 1809 (probably between January and June, according to Mr Stearn) Willdenow, *Enum. hort. Berol.*, *I*, 202, had already published the name " *Convolvulus sylvestris* Waldst. et Kitaib., pl. rar. hung.," with a short description. The fact that he omitted the page and plate references, contrary to his usual practice, suggests that the Hungarian work was then not yet published, or had not yet reached him. It seems likely that he was giving an independent description of cultivated material, that the change of trivial was due to a misunderstanding or a slip, and that his work actually appeared before the Hungarian one. Ten years later Roemer & Schultes, *Syst.*, *IV*, 183, 1819, transferred the species to *Calystegia* as *C. sylvestris* using Willdenow's description, giving the single locality " ad thermas Herculis " of Waldstein and Kitaibel, and citing the earlier references. There can be no shadow of doubt that all three works had the same plant under consideration and it is quite inadmissible to attempt to separate the plants described by Waldstein & Kitaibel from those of Willdenow and Roemer & Schultes as has been done by Beck, *Fl. Nieder-Oest.*, 947, 1893, and Rouy, *Fl. Fr.*, X, 346, 1908. If there are indeed two plants involved separated by angled or terete peduncles and by the form of the lobes of the leaves, then the one with terete peduncles is the plant of Waldstein & Kitaibel. So far I am not convinced that such a separation can be made.

On the assumption that Willdenow's description appeared before Waldstein & Kitaibel's, the correct citation under *Calystegia* is *C. sylvestris* (Willd.) R. & S., with *C. sylvatica* (W. & K.) Griseb., *Spic. fl. rum. & bith.*, *II*, 74, 1844, falling into synonymy. Similarly under *Convolvulus* the correct name would seem to be *C. sylvestris* Willd.; the earlier *C. inflatus* Desf. appeared without a description (*Tabl.*, 74, 1804) and is therefore not a valid publication. Desfontaines may have had the right plant but if so there was confusion over its origin for which he cites America and there seems no evidence except the choice of trivial to link it with the plant under discussion. He made no mention of it in a descriptive work issued later (*Catalogus Plantarum*, ed. 3, 1829).

Waldstein & Kitaibel had their bindweed in cultivation and evidently distributed seeds or roots to Willdenow to grow at Berlin. Loudon in 1829 (*Encycl.*, 140) and 1830 (*Hort. brit.*, 64) states that the white flowered plant was introduced into this country in 1815 and its origin was Hungary. In the first work he cites it as of Willdenow, *Enum.*, and in the second as *sylvestris* of Roemer & Schultes. The probability is that it came to us via Germany. The same particulars of introduction have been repeated throughout our gardening reference books right up to Wright & Dewar's 1894 edition of *Johnson's Gardener's Dictionary*. Robinson (1883: *English Flower Garden*, 90, *t.* 79) illustrated the right plant and remarked how vigorously it grew and how it could take care of itself in the wild garden, "among bushes or hedges, or over railings, or on rough banks . . ." Nicholson (1884: *Ill. Dict.*, *I*, 249) confused the white flowered plant with "*C. sepium incarnata*" which Loudon had properly distinguished, and later in the "*1900*" *Supplement*, 188, 1900, he complicated matters by describing the right plant and adding "There is also a pink-flowered form, *incarnata*." Loudon had used the name for the "American Great Bindweed" which as illustrated in *Bot. Mag.*, *t.* 732, from material grown at the Botanic Garden, Brompton, is a variant of *C. sepium*.

The earliest British specimen of *Calystegia sylvestris* which I have seen is labelled "Anglia. Herb. Forsyth" and was in Herb. Hooker in 1854 (Hb. Kew). If it was collected by the younger William Forsyth (1772?-1835) it was probably a garden plant and might well agree with the date of introduction given by Loudon. If preserved by his father (1737-1804) it would be evidence that the plant was already in cultivation here, or found wild, before 1815. The earliest dated British material seen was gathered at Twickenham Park (Middlesex) by W. T. Thiselton-Dyer in August 1867 (Hb. Kew). This is labelled with the correct name but the habitat is one where a garden plant might well get established, and there is no evidence that it was wild. The record, without the date, has been noted in the annotated copy of Trimen and Dyer's *Flora of Middlesex* at South Kensington where it is also stated that James Britten found it in Ealing Lane, Brentford, in 1873. It was then said to be plentiful and D. H. Kent informs me that it still occurs in quantity in the same locality now known as Ealing Road. It has thus persisted in at least one British locality for 73 years! The other sheets at Kew from v.-cc. 1, 3, 21, 23, and 34 were all collected from 1921 onwards but the plant is now known to be common around London and in other places in the south of England and certainly goes as far north as v.-c. 39, Staffs. (Edees) and around Sheffield (Brown). Prior to 1921 it was probably overlooked.

Its occurrence in many habitats is strongly suggestive of a garden outcast but it has been difficult to believe that gardeners would deliberately grow such an aggressive species with only slight advantages in beauty over the native species which is known to be a difficult weed. Mr Lowne however informs me (*in litt.*, October 1946) that he remembers that "about 40 years ago it was advertised as a novelty ' lovely American Bell-bine grows 20 ft. in a season, etc.'." The roots were sold at a cheap rate and his mother sent for some, but as soon as it became established they did their best to get rid of it. "Probably hundreds of people threw it out as we did and so spread it about." The explanation seems a very likely one and the name "American Bell-bine" is not an unlikely choice for the trade anxious to sell the roots as a novelty when we bear in mind the use of Desfontaine's name in Floras and the confusion with the "American Great Bindweed" already mentioned.

In this country the form with rose coloured corollas is found occasionally, though the white flowers as illustrated by Waldstein & Kitaibel, and described by most of the gardening books, are more common. In Holland the nurserymen seem to have distributed only the rose-coloured form, for only this (" var. *roseus* Sims ") is recorded as established (Heukels, 1933: *Schoolflora*, Ed. 8, 561). The question of whether some of the British records of *C. dahuricus* Sims belong here has not been investigated.

At Kew there is material of the species showing a range from South France, Italy and Sicily through Croatia, Bulgaria and Greece to the Caspian Sea (Lenkoran).—J. E. LOUSLEY.

532/2. LINARIA PURPUREA (L.) Mill. Stephenson, T. (1946; *Naturalist*, 819, 138) describes, pink-flowered plants, a new var. **rosea** from Devon.—[S.] The plant appears to be *L. purpurea* "Mrs Wentworth." Specimens of this, given me many years ago by Mr Lofthouse of Middlesbrough, seeded themselves in my garden. For one or two years only rose-coloured plants came up, but then a few normal purple plants appeared among them and in a year or two all the plants in the garden (where it became and still is a weed) were purple. It is clearly scarcely worthy of a name other than the horticultural one.—A. J. WILMOTT.

545. EUPHRASIA. Pugsley, H. W. (1946: *Naturalist*, 816, 11) records further species collected on Rhum in 1943 by Prof. J. W. Heslop Harrison and which were omitted from previous notes in *The Naturalist* for April-June 1945 (No. 813).—[S.]

550/10. OROBANCHE MINOR Sm. Malins Smith, A. (1946: *Naturalist*, 816, 13-15) records some observations on the spread of this species made over a period of nine years in a small area. A note on the weight of the seeds is included.—[S.]

558/5. MENTHA CRISPA L. In 1939 Mr A. L. Still reported that *M. crispa* L. in his garden had given a sport " with the characters of *M. lacerata* Opiz (=*M. spicata* Huds. var. *lacerata* (Opiz) Fraser)." I have recently examined a specimen of this sport, and, whilst confirming Mr Still's opinion, I would add more strongly that it is identical with the material in the Oxford Botanic Garden which Mr Fraser identified as his var. *lacerata* of *M. spicata* Huds. It would thereby seem that *M. crispa* L. and Mr Fraser's variety are two different growth-forms of the same mint.—R. GRAHAM.

558. MENTHA in Bermuda. A period of 1½ years garrison duty enabled me to study the mint flora on this archipelago. Only four different mints were seen—*M. rotundifolia* Huds., *M. spicata* Huds., ×*M. cordifolia* (Opiz) Fraser, and *M. citrata* Ehrh. All these were listed in the *Flora of Bermuda*, with *M. aquatica* L. and *M. arvensis* L., which I was unable to find, the former possibly being an error for *M. citrata* and the latter evidently a rare weed. Of the four that I saw, three grew apparently wild, but ×*M. cordifolia* was only in gardens. None of these showed noticeable differences from British material. Two points of interest arise. Firstly, in a damp area of ground, both *M. rotundifolia* and *M. spicata* grew luxuriantly together, but there was no sign of ×*M. cordifolia* with them, which might be expected if it were a hybrid of these two parents, as has been claimed. In this case a better opportunity for hybridisation can scarcely be imagined, and the question arises as to whether *M. cordifolia* is indeed such a hybrid. Secondly the claim of a *spicata-aquatica* parentage for *M. citrata* comes under question. My inability to find *M. aquatica*—there was splendid terrain for this species—led to my supposition of a mistaken identity. If this is true, and if *M. citrata* is indeed a hybrid of *M. spicata* and *M. aquatica*, we have a situation where a hybrid grows on an island, 600 miles from nearest land, where one of its parents does not—and perhaps has never—occurred.—R. GRAHAM, 1946.

588/2. PLANTAGO MARITIMA L. Gregor, J. W. (1946: Ecotypic differentiation. *New Phytol.*, *45*, pp. 254-270) presents data relating to the European diploid population of *Plantago maritima* L.; among the characters whose variation has been studied along edaphic gradients are plant size, growth habit and reproductive capacity. He finds that as the ecotypic composition of sea-plantain populations is traced along an " improving " soil gradient the plants become hereditarily larger and taller and have larger seeds and a higher reproductive potential at the more advanced stages of plant succession. Ecotypic differentiation seems more often to be continuous than discontinuous and therefore difficult to classify along orthodox taxonomic lines, though for practical purposes particular ranges of ecoclimal variation may have to be recognized as *ecotypes.* Sometimes ecotypes bear the diagnostic characters of taxonomic units. A variational trend of geographical significance but for which no ecological explanation is apparent can be recorded as a *topocline.*—[H.A.H.]

†596/9(2). **Amaranthus blitoides** S. Wats, 1877: in *Proc. Amer. Acad. Arts and Sci.*, *12*, 273.

6, N. Somerset; waste ground, Ashton Gate, Bristol, 1940, Mrs SANDWITH and J. P. M. BRENAN (Herb. Sandwith, Herb. Brenan).

21, Middlesex; waste ground near Yiewsley, 1929, R. MELVILLE (Herb. Druce). This specimen was the basis of the erroneous record of *A. graecizans* L. (see *B.E.C. 1930 Rep.*, 279; 1931). According to Thellung, in his account of the genus in Asch. et Graebn., 1914: *Syn. Mitteleur. Fl.*, *5* (*1*), 285, *A. graecizans* L. is based partly on *A. albus* L. and partly on *A. angustifolius* Lam., and, on account of the confused way in which the name *A. graecizans* L. has been applied, Thellung proposes that it should be rejected as a *nomen confusum*.

34, W. Glos.; fowl run, Baptist Mills, Bristol, 1925, C. and N. SANDWITH (Herb. Sandwith), wrongly recorded as *A. Thunbergii* Moq. in "The Adventive Flora of the Port of Bristol," (see *B.E.C. 1932 Rep.*, 352: 1933).

Specimens from waste ground, Penarth Road, Cardiff, Glam., v.-c. 41, Sept. 29, 1933, coll. *A. E. Wade*, were distributed under the name *A. blitoides* S. Wats. through the B.E.C. Exchange Section, see *B.E.C. 1933 Rep.*, 769: 1934, and the identification was not questioned. The sheet of this gathering in the Kew Herbarium is, however, clearly referable to *A. angustifolius* Lam.

A. blitoides S. Wats. is a native of North America, and has occurred repeatedly as an alien in central and southern Europe (see Thellung, *op. cit.*, pp. 290-293). For a recent account of its occurrence in Paris and its neighbourhood, see P. Jovet, (1940: *Bull. Mus. Paris*, 2 Ser., *12*, 369-371, figs. on p. 366).

Among the species of Amaranth recorded as adventives in Britain there are two to which *A. blitoides* is especially close both taxonomically and in general appearance—*A. angustifolius* Lam. and *A. Thunbergii* Moq. It differs from *A. angustifolius* in the longer (2-2.5 mm.) ♀ tepals equalling or exceeding the ripe fruit; in *A. angustifolius* the ♀ tepals are 1.3-1.9 mm. long and considerably shorter than the ripe fruit. The seeds of *A. blitoides* are usually somewhat larger than in *A. angustifolius*. The identity of the broader-leaved specimens in British herbaria labelled *A. angustifolius* requires re-checking, as *A. blitoides* may have been in the past very easily confused with it. The laminae of the broader-leaved forms of *A. angustifolius* are usually elliptic or rhombic-elliptic and are frequently acute in outline at the apex. But *A. blitoides* almost always has the leaves spathulate or spathulate-elliptic, rounded and mucronate at the apex. So does *A. Thunbergii*.

A. Thunbergii is, however, easier to distinguish from *A. blitoides* than is *A. angustifolius*. *A. Thunbergii* differs from *A. blitoides* in the ovate or ovate-lanceolate ♀ tepals, longer (about 4-4.5 mm.) and much broader towards the base (about 1.25-2 mm.), so that they overlap in their lower part and are not separated from each other to the base as in *A. blitoides*. The green midrib becomes colourless in the lower part of the tepals, and, the tepals being broader than in *A. blitoides*, the scarious margins are wider and more marked, giving a more stramineous appearance to the clusters of flowers or fruits. The spinule at the apex of the ♀ tepals of *A. Thunbergii* is much longer (about 0.75-1 mm.) than in *A. blitoides*. The fruits are longer (3 mm. as against 2 mm.) and are ovoid-ellipsoid rather than rotund-ellipsoid and (? always) less wrinkled towards base.

The arrangement of the genus *Amaranthus* in the *B.P.L.*, ed. 2, appears to be based on that of Thellung already referred to, so that *A. blitoides* will be inserted after *A. albus* L., from which it is very distinct in the shorter, non-spinescent bracteoles.—J. P. M. BRENAN and N. Y. SANDWITH.

†596/9(3). **Amaranthus acutilobus** Uline et Bray, 1894: *Bot. Gaz.*, *19*, 320; Hegi, 1910: *Fl. Mittel-Europa*, *3*, 263; Thellung, 1914: in *Aschers. et Graebn. Syn. Mittel-Europ. Fl.*, *5*, 1, p. 282; Standley, 1917: in *N. Amer. Fl.*, *21*, part 2, 117. *A. emarginatus* auct. et hort. bot., *non* Salzm.

Channel Isles: Jersey; St Helier's, casual not naturalised, Sept. 21st, 1929, Bro. LOUIS-ARSÈNE, distributed as *A. ascendens* Loisel. var. *polygonoides* (Moq.) Thell., see *B.E.C. 1929 Rep.*, 237; 1930.

This is a native of Southern Mexico which has occurred in botanic gardens of Europe since 1850, and as an adventive in Germany, Austria, Czechoslovakia and Southern Italy. The species is well characterised by being quite glabrous; by the remarkably small, obcordate and deeply emarginate leaves; the small axillary clusters of flowers; the spinous-tipped outer bracts which are up to twice as long as the female flowers; the 5 tepals of the male and the 4 tepals of the female flowers; and, finally, by the ellipsoid-subglobose utricles which are smooth and indehiscent. Owing to the latter character of the indehiscent fruit, *A. acutilobus* has been placed by some authors near *A. ascendens*, *A. lividus*, *A. viridis* (*A. gracilis*) and *A. deflexus*, species which it does not resemble in other characters of the inflorescence. For this reason also, no doubt, it was particularly confused with *A. lividus* race *polygonoides* (Moq.) Thell. (*A. emarginatus* Salzm.), which has small, deeply emarginate leaves; and this confusion was responsible for the name under which Brother Arsène distributed his specimens, adding *A. acutilobus* Uline et Bray in brackets as if it were a synonym. In the races of *A. lividus* the bracts are ovate, blunt, membranous, ⅓-½ as long as the perigonium; and the flowers of both sexes are trimerous (except in race *oleraceus*).

A. acutilobus resembles more closely in general facies such species as *A. Thunbergii*, *A. blitoides* and *A. albus*. In Thellung's work it is placed next to *A. albus*, from which it differs in many obvious characters, especially the shape of the leaves, the 4-5-merous flowers, and the indehiscent fruit. It is evidently an outstandingly distinct species with a peculiar and interesting combination of characters, the kind of plant which prevents the division of the genus into well-defined sections. I suggest that *A. acutilobus* be placed in our list after *A. blitoides* S. Wats., discussed above.

Mr J. P. M. Brenan has examined the seeds of Arsène's specimen in Herb. Druce under the compound microscope. He writes that the surface is minutely and densely muriculate-roughened, a character which immediately distinguishes this plant from *A. lividus* race *polygonoides*, also from *A. Thunbergii* and *A. albus*, and again from *A. angustifolius* and *A. blitoides.* He finds that in all these species the seeds, under the compound microscope, are shining and smooth except for the very faintest of more or less polygonal honeycomb markings. Mr Brenan, who writes with the experience of microscopic study of the seeds of many species of *Chenopodium*, is impressed by this seed character, which does not appear to have been mentioned, and the validity of which I cannot check since I have found no other specimens of *A. acutilobus* in the Kew Herbarium.—N. Y. SANDWITH.

†600/26(2). CHENOPODIUM PUMILIO R. Br. (See *B.E.C. 1945 Rep.*, 166; 1947). Mr Ash's plant is not *C. carinatum* R. Br. but **C. pumilio** R. Br., 1810: *Prodr. Fl. Nov. Holl.*, *1*, 407, likewise native of Australia. This is also Mr Sandwith's revised verdict. Our views on the adventive species of §*Orthosporum* R. Br. require considerable alteration in the light of Dr Aellen's revision of the Australian species of the section (1933: *Verhandl. Naturforsch. Gesellsch. Basel*, *44*, 308-318, with figures, which are reproduced by Ulbrich, 1934: in *Nat. Pflanzenfam.*, ed. 2, *16c*, fig. 187 on p. 493. Dr Aellen's earlier determination-slips on specimens should be correlated with this revision, as his own views on the application and status of certain names became altered rather drastically. He separates the species mainly on the morphology of the perianth, more especially the presence or absence, and shape, of the keel or wing-like projection on the back of each tepal. Examination of the material in Herb. Druce shows that most of the British material hitherto named *C. carinatum* R. Br. has tepals which, although markedly convex on the back, are without any keel or wing, and are therefore to be referred to *C. pumilio* R. Br., the only species lacking these appendages. There are sheets of *C. pumilio* from Cardiff (1927, *G. C. Druce*) and Bradford (1917, 1921, *J. Cryer*), and I have also seen a specimen from Southampton (1936, *J. W. Long*). *C. carinatum* R. Br. proper has a well-marked wing-like keel to the tepals, and is divided by Aellen into two varieties. There is a single sheet of it in Herb. Druce (Tweedside, Galashiels, 1914, *G. C. Druce* and *Miss I. M. Hayward*) which was recorded in *B.E.C. 1928 Rep.*, 637: 1929, as *C. holopterum* (Thell.) Thell. et Aell.; it will now stand as *C. carinatum* R. Br. var. **holopterum** (Thell.) Aell. Two other specimens in Herb. Druce deserve mention here. Firstly, a poor specimen from Tweedside (1911, *Miss I. M. Hayward*) is certainly *C. pumilio*, but differs in the tepals in the fruiting stage being green, more connate than usual, scarcely convex on back, and more closely investing the fruit; it is probably *C. pumilio* f. *glandulosum* (Moq.) Aell., which is described as having these characters. Secondly, a remarkable specimen from Bradford (1921, *G. C. Druce*) having the tepals variably keeled, but much less markedly so than in *C. carinatum*; I expect that this is ×*C. Christii* Aell. var. *intermedium* Aell. (*C. carinatum* var. *holopterum* × *pumilio*). It is desirable that Dr Aellen's confirmation both of this and *C. pumilio* f.

glandulosum should be obtained before they are admitted to the British List.—J. P. M. Brenan.

615/6-8. Polygonum lapathifolium, P. Persicaria and P. nodosum—a remarkable colony. The extreme variability of *P. Persicaria* and its allied species was well illustrated in a field at Wroughton, North Wilts, v.-c. 7, in the autumn of 1946. The field, which is on the clay, had been pasture-land for many years, but in 1946 it was planted with potatoes. The natural dampness of the soil, accentuated by the heavy rainfall of the summer, caused a complete failure of the crop. The field became dominated by a mass of varying forms of *Polygonum*, and the red coloration was visible from a considerable distance. In August many of the plants reached a height of about 75 cm., effectively excluding almost all other tall-growing species. There was, however, a very dense lower layer consisting chiefly of *Stellaria media* and *Polygonum heterophyllum*, presumably able to thrive because of the high-branching habit of the larger *Polygonum*.

Examination of the forms showed that they could be allocated to seven divisions, leaving a small residue of individuals, perhaps about 5%, which could not be satisfactorily classified. The divisions comprised four of *P. lapathifolium*, one of *P. nodosum* and two of *P. Persicaria*. All plants fruited abundantly, and the fruits appeared to be normal in every case. It was noted that the specimens of *P. nodosum* were remarkably uniform.

In the subjoined table only inconstant characters are given. *P. Persicaria* L. var. *elatum* Gren. & Godr., and var. *agreste* Meisn. are identified *sensu* Moss (*Camb. Br. Fl.*, 2. 116, 1914).

	Habit.	Stem.	Leaves.	Racemes.	Colour.	Approx. proportion of total.
1. *P. lapathifolium*	Branches sub-erect.	Unspotted.	Faintly spotted.	Stout.	Green.	5%
2. *P. lapathifolium*	Branches slightly spreading.	Unspotted	Faintly spotted	Rather slender.	Green.	5%
3. *P. lapathifolium*	Branches erect.	Unspotted.	Distinctly spotted.	Stout.	Greenish-pink.	5%
4. *P. lapathifolium*	Branches widely spreading.	Spotted.	Conspicuously spotted.	Rather stout.	Greenish-pink.	30%
5. *P. nodosum*	Branches spreading & drooping	Strongly spotted.	Lower only conspicuously spotted.	Slender	Bright pink.	40%
6. *P. Persicaria* var. *elatum*	Branches erect.	Unspotted.	Faintly spotted.	Slender.	Pink.	5%
7. *P. Persicaria* var. *agreste*	Branches erect.	Unspotted.	Distinctly spotted.	Rather stout, short.	Greenish-pink.	5%
Unclassified.						5%

The paucity of the associated flora is demonstrated by the following census:

Polygonum nodosum	dominant.
P. lapathifolium (4)	abundant, locally dominant.
P. lapathifolium (3)	frequent.
P. lapathifolium (2)	frequent.
P. lapathifolium (1)	frequent.
P. Persicaria var. *elatum*	frequent.
P. Persicaria var. *agreste*	frequent.
Stellaria media	abundant.
Polygonum heterophyllum	abundant.
Ranunculus repens	occasional.
Sonchus asper	occasional.
Stellaria aquatica	rare.
Trifolium dubium	rare.
Matricaria inodora	rare.
Cirsium arvense	rare.
Leontodon autumnalis	rare.
Chenopodium album	rare.
Atriplex patula	rare.
A. hastata	rare.
Rumex sp. (leaves only)	rare.
Holcus lanatus	rare.
Poa annua	rare.

—J. D. GROSE.

615/36b. POLYGONUM PENSYLVANICUM L. var. **laevigatum** Fernald, 1917: *Rhodora*, *19*, 70-73. In September 1945 an immature *Polygonum* which seemed unlike any native British species was noticed outside the works of Soya Foods Ltd., at Harefield, Middlesex, v.-c. 21. On the 22nd of that month and again on October 6th Mr D. H. Kent was able to collect rather better material from the same place. He also collected up some of the sweepings from outside the factory entrance and these we divided and planted in our gardens the following spring. Amongst the plants which appeared in both cultures were magnificent growths of *Polygonum pensylvanicum* L. var. *laevigatum* Fernald. The species was described by Linnaeus from material collected by Kalm in "Pensylvania", 1763: *Sp. pl.*, *1*, 362, and Fernald has shown (*l.c.*) that this spelling of the name of the colony was common at the time and therefore that of the trivial cannot be corrected as "a clearly unintentional orthographic error" (International Rules, *Cambridge*, 1930, Art. 70).

Important characters of the species are the erect racemes, the densely glandular peduncles, the close cylindric naked glabrous ochreae and the orbicular, flat, smooth, shining nuts. The general aspect of the Harefield plant recalls *P. lapathifolium* in leaves and habit and *P. Bistorta* in the racemes. *Ic.*: Britton & Brown, 1896: *Illustr. Fl.*, ed. 1, *I*, *fig.* 1325; 1913: ed. 2, *I*, *fig.* 1634.

Fernald has shown (*l.c.*) that the typical form of the species as described by Linnaeus has leaves copiously strigose beneath and is in North America a local plant apparently restricted to the coastal region from Massachusetts to Mississippi and northward through the Mississippi basin to southern Ontario. The var. *laevigatum* has leaves glabrous or at most sparsely strigose on the midrib beneath, the ochreae usually all eciliate and the achenes mostly 2.5-3.5 mm. broad. It is the common form of the species and occurs from New Brunswick to South Dakota, Colorado and southward. Material collected by Fernald has been compared—*Pl. Exsicc. Grayanae*, 201 (Hb. Kew).

The species has been previously reported from Britain (*B.E.C. 1933 Rep.*, 481; 1934) but the variety appears to be an addition to the *British Plant List*. Material from my garden was sent to the annual Exchange. —J. E. LOUSLEY.

618/2. RUMEX LONGIFOLIUS DC. When I investigated the nomenclature of this species in 1938 it proved extremely difficult to decide on the correct name to be used. The choice rested between *R. domesticus* Hartman (1820: *Handb. Skand. Fl.*, ed. 1, 148), and the earlier *R. longifolius* DC. (1815: *Fl. France, 5* (*Suppl. 6*), 368). The description given by De Candolle has several unsatisfactory features and cannot be said to apply with certainty to the dock which is common in many parts of Scotland and Northern England. It was based, however, on material sent by Coder from the " environs de Prades, en Roussillon," which is about 25 miles above Perpignan in the Pyrenees, and here the species under consideration still grows. In an attempt to clear up the matter once and for all the authorities at Kew kindly wrote on my behalf to Geneva with a view to borrowing De Candolle's type, but they replied that they had no material of " *Rumex longifolius* from France." With considerable reluctance I therefore adopted Hartman's name, which had the merit of freedom from ambiguity (*B.E.C. 1941/2 Rep.*, 550-551; 1944).

It was therefore with great delight that I received a letter from Dr K. H. Rechinger, then staying at Geneva, dated July 15, 1946, reporting that he had found the undoubted type specimen of *Rumex longifolius*. He wrote: " I just have before me the sheet of the DC.-Prodrome-herb., containing the type of *Rumex longifolius*!! It bears the label: ' No. 183 *Rumex*—M. Codere 1814. Pyr. orient.' There is a second label in the corner: ' *Rumex longifolius* DC. *Suppl.*, *R. aquaticus* Campd.' There can be no doubt that it is really the type of *R. longifolius* DC. and I can't imagine how they failed to find it as you mention in your paper. The specimen consists of a basal leaf and a panicle with not completely ripe fruits. It is exactly the plant which is common in the Pyrenées-orientales (where I gathered it again in 1944—I shall send you a specimen as soon as possible!) and cannot be distinguished from the common Scandinavian and Scotch plant (as already pointed out before). So finally this question is settled! . . . "

Dr Rechinger very kindly arranged for the sheet to be photographed and sent me the negative on loan. Copies have been deposited at Kew and South Kensington. From the material it is evident that De Candolle's description can be reconciled with Coder's specimen, which was not entirely adequate for a last-minute addition to the *Supplement*, published only the year after it was gathered.

The *British Plant List* entry should therefore be altered back to *R. longifolius* DC. as printed and although it is with regret that another name change has proved necessary the solution of this very vexed question of nomenclature must cause considerable satisfaction.—J. E. LOUSLEY.

628. EUPHORBIA. Smith, L. (1946: *N.W. Nat.*, *21*, 105-107) gives notes on an interesting Spurge found at the side of the old river Don, near Doncaster. The referees place it under *Euphorbia virgata* but suggest that there may be some hybrid influence in it.—[S.]

642/1. BETULA ALBA L. Johansson, Helge (1944: Triploidy in *Betula alba* L.; *Bot. Notiser*, *1*, 85-96) describes triploid trees with 42 chromosomes, one representing the F^1 generation of the hybrid between *B. alba* and *B. pubescens*, the other an autotetraploid of *B. alba*.—[Wa.]

650. SALIX. Wilkinson, John (1946: Some Factors affecting the Distribution of the Capreae group of *Salix* in Gower; *Journ. Ecol.*, *33*, 214-221) gives an account of the distribution in the Gower, Glamorgan, of *S. Caprea*, *S. aurita* and *S. atrocinerea* and the naturally occurring hybrids between them The effects of the physical features, geology and soil are discussed. The adaptational value of rooting characteristics is also noted. *S. Caprea* develops a relatively deep and not particularly extensive root system in well-aerated sites, whilst *S. aurita* and *S. atrocinerea* develop comparatively shallow and widely spreading root systems in their normally damp habitats. The hybrids appear to develop more vigorous root systems than the parent species.—[Wa.]

650. SALIX. Gurney, R. (1946: *N.W. Nat.*, *21*, 198-201, 2 plates) describes the witches' brooms observed on *Salix fragilis* L. and *Salix* [*alba* var.] *vitellina* L. He also gives his observations on the rosette galls of *Salix triandra* L. and abnormal catkins of *Salix cinerea* L. Their causation is discussed and further research into the physiology suggested.—[S.]

650/8. SALIX CAPREA Linn. Denton, M. E. (1945: *N.W. Nat.*, *20*. 264-265) reports an example of fasciation from Fadmoor, near Kirby Moorside.—[S.]

668. EPIPACTIS. T. Stephenson (1946: *Trans. Torquay N.H. Soc.*, *9*, 125-127) gives a brief account of the British species. Reference is made to the as yet unpublished *E. cambrensis* from near Kenfig, Glamorgan, which Mr C. Thomas will be describing shortly.—[Wa.]

668/2. EPIPACTIS HELLEBORINE (L.) Cr. Abercrombie, R. G. (1945: *N.W. Nat.*, *20*, 226-228) describes two diminutive forms of this species (as *Helleborine Helleborine* (L.) Druce) observed in the Peak District, and discusses its fertilisation.—[S.]

669/9(3). ORCHIS TRAUNSTEINERIOIDES (Pugsl.) Pugsl. Pugsley, H. W. (1946: *Naturalist*, 817. 47) gives notes on this species from British localities.—[S.]

702/19. ALLIUM PARADOXUM G. Don. 23, Oxon.; abundant and well established in the shrubbery adjoining Adwell House, and in a small copse about 100 yards distant, Adwell. Discovered and reported to me as *A. triquetrum* L. by Mr W. B. Alexander, April 1946.

I visited the locality in May, 1946, and learned from Mr Holland, the bailiff of the Adwell estate, that in the latter part of the last century the occupants of Adwell House travelled extensively in Europe and were in the habit of bringing back and planting roots and seeds of plants collected on their travels. Mr Holland has known this " onion " at Adwell for the last 40-50 years and thinks, as seems probable, that *A. paradoxum* owes its origin at Adwell to this means of introduction.

It may be convenient to give here a brief description of *A. paradoxum*, which is a species native of the Caucasus and Iran, and to point out the main differences between it and *A. triquetrum* with which, apparently, it is sometimes confused—mainly, it is presumed, on account of both species having triquetrous stems and an early flowering period.

A. paradoxum G. Don. Flowering period April-early May. Bulb solitary (at time of flowering), egg-shaped or globular, small (about 1 cm. long). *Stem* triquetrous, naked, 2-3 dm. high. *Leaves* usually solitary (sometimes two), narrowly oblong-acute, up to 1.3 cm. broad, keeled, many-nerved, equalling or exceeding the stem. *Spathe* whitish, thin, with 2-3 lanceolate valves, shorter than the pedicels, caducous. *Pedicels* filamentous, very unequal, up to over 5 cm. long and 3-4 times as long as the flower, intermingled with greenish bulbils. *Flowers* bell-shaped, somewhat erect, normally 1-3 (sometimes 6, or more). *Perianth segments* connivent, oblong-elliptic, acute or obtuse, up to 1.3 cm. long, white with a single central green nerve reaching to the apex. *Style* filiform with a 3-fid linear-lobed stigma.

The main differences of *A. paradoxum* from *A. triquetrum* are its earlier flowering period; more slender habit; fewer (1-2) and narrower leaves; shorter and often 3-valved spathe; few (normally 1-3) small-flowered and irregular umbel, with flowers on long slender pedicels intermingled with bulbils.—J. F. G. CHAPPLE.

718. JUNCUS. Tweed, R. D., and Woodhead, N. (1946: A Consideration of *Juncus effusus* L. and *Juncus conglomeratus* L.; *Journ. Ecol.*, *33*, 210-213) discuss the morphological differences between, and the distribution of, *J. effusus* and *J. conglomeratus*. The confusion between the latter and *J. effusus* var. *compactus* is discussed. In North Wales *Juncus conglomeratus* is a very rare plant and a lowland species whilst *J. effusus* and its var. *compactus* have an extensive distribution on the mountain slopes, on poor pasture retrogressive to moorland, and in the more open parts of woods. The association on higher ground is dominated by the variety.—[Wa.]

101. LEMNACEAE. Observations on Indian Duckweeds, McCann, C. (*Jnl. Bombay Nat. Hist. Soc.*, *43*, 148-162, 1942) contains critical notes and illustrations of *Lemna polyrrhiza* and *Wolffia arrhiza* of interest to students of this group. *L. polyrrhiza* is treated as *Spirodela polyrrhiza* and sound reasons are given for maintaining this genus.—[E.C.W.]

738/2. RUPPIA MARITIMA L. McCann, C. (1945: Notes on the Genus *Ruppia*; *Jnl. Bombay Nat. Hist. Soc.*, *45*, 396-402) gives field observations with special reference to pollination and seed dispersal.—[E.C.W.]

753. CAREX. Harrison, J. W. Heslop (1945: *Trans. Bot. Soc. Edinb.*, *34*, 270-277) contributes ecological, phytogeographical and taxonomic notes on "Noteworthy Sedges from the Inner and Outer Hebrides, with an account of two species, *C. capitata* L. and *C. glacialis* Mackenzie, new to the British Isles."—[Wa.]

753/17×23. **×Carex Tornabeni** Chiov. (*C. distans* L. × *extensa* Good.). This hybrid, new to the British Isles, is recorded for Dorset and E. Kent by J. P. M. Brenan and N. D. Simpson (1946: *N.W. Nat.*, *20*, 202-206). It differs from *C. extensa*, which it most resembles, in the smaller (3.1 × 1.4 mm.), laxer utricles, more ascending than usual in that species, and the more pronounced beak with an often deeper notch. The nut is intermediate in shape, with a surface as in *C. extensa*. A full description is given.—[Wi.]

754/2b. PANICUM CAPILLARE L. var. **occidentale** Rydb., 1895: *Contrib. U.S. Nat. Herb.*, *3*, 186. (*Panicum barbipulvinatum* Nash, 1900: in Rydb., *Mem. N.Y. Bot. Gard.*, *1*, 21. 21, Middx.; canal bank near Soya Foods Ltd., Springwell, near Harefield, 1945, det. C. E. HUBBARD. Alien, U.S.A. The variety differs from the typical plant in the blades being shorter, less pubescent, and crowded towards the base; spikelets usually about 3 mm. long, attenuate at tip; fruit 1.7 to 1.8 mm. long.—D. H. KENT. 30, Beds.; Sandy, 1946, J. G. DONY, det. C. E. HUBBARD.

754/2(2). **Panicum dichotomiflorum** Michx., 1803: *Fl. Bor. Amer.*, *1*, 48. 21, Middx.; forecourt of Soya Foods Ltd., Springwell, near Harefield, 1945, B. WELCH, det. Mrs A. CHASE, United States National Museum. Alien, U.S.A., Hitchcock, 1935: *Manual of the Grasses of the United States*, p. 665, gives the following description:—Culms ascending or spreading from a geniculate base, 50 to 100 cm. long, or in robust specimens as much as 2 m. long; ligule a dense ring of white hairs 1 to 2 mm. long; blades sometimes sparsely pilose on the upper surface, 10 to 50 cm. long, 3 to 20 mm. wide, the white midrib usually prominent; panicles terminal and axillary, mostly included at base, 10 to 40 cm. long or more, the main branches ascending; spikelets narrowly oblong-ovate, usually about 2.5 mm. long, acute.—D. H. KENT.

†794/5(3). **Avena byzantina** C. Koch, 1848: *Linnaea*, *21*, 392. *A. sterilis algeriensis* Trabut, 1918: " Observations sur l'origine des Avoines cultivées," *IVme Conférence Internationale de Génétique*. *A. sterilis* L. ssp. *culta* Marquand, 1922: " Varieties of oats in cultivation," *Welsh Plant Breeding Station's Bulletin*, Series C, no. 2, p. 35. 34, W. Glos.; rubbish tip, Portway, Bristol, August 1946, C. I. Sandwith, det. C. E. Hubbard. A cultigen, known as " Algerian " or " Mediterranean Oat," derived from *A. sterilis* and bearing the same relation to it as *A. sativa* does to *A. fatua*: that is to say, in Marquand's words, " it differs from the wild varieties of *A. sterilis* in the more or less complete solidification of the basal articulation of the lower grain."—N. Y. Sandwith.

815. Eragrostis. Chevalier, Aug. (1940: Revision des *Eragrostis* spontanés ou naturalisés en France; *Bull. Soc. Bot. Fr. 87*, 273-279) gives a revision of the species occurring as adventives in France. The following species are discussed and a key provided: *E. cilianensis* (All.) Vig.-Lut., *E. poaeoides* (L.) Beauv. var. *pumila* Chevalier—a newly-described variety, *E. tef* (Zucc.) Trotter and *E. mexicana* (Hornem.) Link.—[Wa.]

825. Glyceria. Fitzpatrick, Jeanne M. (1946: *New Phyt.*, *45*, 137-144) contributes " A Cytological and Ecological Study of some British species of *Glyceria*." The species dealt with are *G. declinata* Bréb., *G. plicata* Fries, *G. fluitans* R. Br., a possible hybrid between *G. plicata* and *G. fluitans*, and *G. maxima* (Hartm.) Holmb. *G. declinata* was found to be diploid ($2n=20$), *G. plicata*, *G. fluitans* and their hybrid *tetraploid* ($2n=40$) and *G. maxima* a possible hexaploid ($2n=60$). The chromosome number could often be correlated with the size of the cells, in particular, the size of the guard cells of the stomata and of the pollen grains. *G. declinata* seems to be the most drought tolerant of the group, whilst *G. fluitans* occurs in wetter habitats, where there is usually standing water throughout the year. *G. plicata* and the hybrid appear to occupy habitats intermediate in wetness.—[Wa.]

825/1. Glyceria maxima (Hartm.) Holmb. Lambert, J. M. (1946: *Journ. Ecol.*, *33*. 230-267) discusses " The Distribution and Status of *Glyceria maxima* (Hartm.) Holmb. in the Region of Surlingham and Rockland Broads, Norfolk." The biotic and physical factors of its relationship with the fen communities are fully described.—[Wa.]

826/18(2). **Vulpia megalura** (Nutt.) Rydb. in *Bull. Torr. Bot. Cl.*, *36*, 538 (1909). *Festuca megalura* Nutt. N. and S. America, introduced into Europe. Differs from V. *Myuros* chiefly in the presence of cilia on the upper half of the lemma. Maintained as a species by Hitchcock.—C. E. Hubbard. 30, Beds.; railway embankment, East Hyde.—J. G. Dony. [Distributed from Norfolk this year.]

827/19(2). BROMUS LEPIDUS Holmb. Aimée Camus (1940: Sur quelques Graminées; *Bull. Soc. Bot. Fr.*, *87*, 82-84) refers to the probable occurrence of this species in France and gives a description indicating the characters distinguishing it from *B. mollis*.—[Wa.]

847/1. PTERIDIUM AQUILINUM (L.) Kuhn. Lousley, J. E. (1946: *School Nature Study*, *41*, 6-7), deals with the occurrence of " Bracken on Bombed sites " in the London area. Young bracken was seen in 1943 in some of the basements of buildings destroyed in 1940 and 1941: in the following year plants were to be seen in almost every basement in some parts. The late summer of 1945 saw the sudden production of immense numbers of young sporelings. The occurrence of bracken on the sites and in such numbers is due to the great number of introductions by wind-borne spores. It is suggested that the exceptionally high temperature developed by the brick work under moist conditions and the reduction of evaporation by protection from wind favours the germination of the spores.—[Wa.]

872-876. CHARACEAE. Reappearance of Charophytes in Frensham Great Pond, Surrey. After being drained during the war, this pond gradually began to fill again in the autumn of 1945. By mid October on ground that had been uncovered six weeks or so earlier there appeared at the north-western corner in six to eighteen inches of water a quantity of *Nitella opaca* Ag. in splendid fruiting condition although so late in the season. There were also a few plants of it on the northern sandy stretch but with very much longer branchlets. A search for *Chara aspera* Willd. which has been known from here for over sixty years was unsuccessful.

In April 1946 the *N. opaca* was still in evidence. By the middle of July there appeared round the north corner in about nine inches of water a fine growth of a very short form of this species with small round whorls smothered in gametangia, very similar to the form found in Hayle Kembra at the Lizard. A month later this small form was mainly over but was replaced by clumps of *C. delicatula* Ag. in beautiful condition; and at the same time the first piece of *C. aspera* was found.

Not long afterwards drastic dragging operations to remove the extensive sheet of *Polygonum* that interfered with sailing put an end to the Charophytes for the time being.—G. O. ALLEN.

PLANT RECORDS

Thanks are due to those who sent in records on cards and gave all the relevant data. The sending of voucher specimens improved, and it is hoped that members who wish expert determinations of any plant they find difficult to identify will collect an extra specimen where possible which the expert may retain. Please consult the announcement concerning the Panel of Specialists for guidance.

The following signs are used in connection with *Plant Records*:—

§ before the *B.P.L.* number: to indicate that the paragraph contains information necessitating a correction in the annotated copy of *Comital Flora*.

† before the *B.P.L.* number: to indicate that the plant is not a native species in the British Isles.

† before the record: to indicate a native species which is not native in the locality recorded.

* before the record: to indicate new vice-county records, not published previous to the year of the Report.

‡ before the record: to indicate records additional to the annotated copy of *Comital Flora*, published previous to the year of the Report.

[ ] enclosing a record: to indicate doubt as to the validity of the record, either of identification or locality.

A number or letter in brackets between name of county and locality indicates the botanical district, for details of which see local flora.

For other records from v.-cc. 22, 23, 30, 42, 88, 89, see Excursions, pp. 211-232.

2/5. THALICTRUM ALPINUM L. 109, Caithn.; swamp by Mill Dam, Newlands of Forse, alt. 300 ft., E. C. WALLACE.

3/2. ANEMONE NEMOROSA L. 88, M. Perth; at 3100 ft. on An Stuc above Lochan nan Chat (Ben Lawers), 1944, W. Ramsden (A. A. Dallman; 1946: *N.W. Nat.*, *20*, 273). It grows in the "crater" on Ben Lawers, i.e., at some 3900 ft.—M. S. CAMPBELL.

6/3j. RANUNCULUS ACRIS L. var. MINUTIFLORUS Druce. 23, Oxon.; damp meadow at Otmoor, J. P. M. BRENAN and R. GRAHAM.

§6/6. RANUNCULUS LINGUA L. ‡21, Middx.: abundant on verges of a pond near Stanmore Common, D. H. KENT. See *W.B.E.C. Rep.*, 1926-7, 371 (1927) for earlier record, add to *C.F.*—ED.

§6/20. RANUNCULUS FLUITANS Lam. *90, Angus. The wet summer of 1946 had a disastrous effect on the flowering of *Ranunculus fluitans* Lam. Plants observed throughout the season in two localities did not produce a single flower although many abortive buds were formed. On the other hand *Ranunculus pseudo-fluitans* (Syme) Baker & Foggitt had a normal flowering season, U. K. DUNCAN.

6/21. RANUNCULUS CIRCINATUS Sibth. 17, Surrey; pond in Hampton Park near Seale, C. D. PIGOTT.

6/23. RANUNCULUS DROUETII F. Schultz. 41, Glam.; near freshwater spring on dunes, Newton, Miss M. THOMAS, det. R. W. BUTCHER. comm. E. VACHELL, who adds: "Several old records for the county are probably erroneous." 64, M.W. Yorks.; on alluvial mud in riverside ditches in the valley of the Wharfe above Kettlewell, J. N. FRANKLAND. det. R. W. BUTCHER.

6/33e. RANUNCULUS FICARIA L. var. BULBIFERA Marsden-Jones. 22, Berks.; four small colonies at west end of Bagley Wood: in great profusion in a ditch beside the Godstow-Wytham road, J. H. BURNETT.

9/2. HELLEBORUS FOETIDUS L. 17, Surrey; Marden Park near Godstone, C. D. PIGOTT.

†10/1. ERANTHIS HYEMALIS (L.) Salisb. 21, Middx.; wood by Thames, Laleham, B. WELCH, comm. D. H. KENT.

11/1. AQUILEGIA VULGARIS L. 57, Derbs. (L.); Deepdale, Taddington, ?native, 1943 (pink flowers); 64, M.W. Yorks. (W.); Grass Wood. 1945 (pink flowers); 97, Westerness; above Ft. William (blue flowers). D. P. YOUNG.

17/1. BERBERIS VULGARIS L. 109, Caithn.; hedge in lane near Bower, and near Watten, E. C. WALLACE.

†17/2. BERBERIS AQUIFOLIUM Pursh. 17, Surrey (8); Croham Hurst, since 1934, D. P. YOUNG. 41, Glam.; Penrice; Penmaen, etc.. J. A. WEBB, comm. E. VACHELL.

§22/1. MECONOPSIS CAMBRICA (L.) Vig. †69, Westm.; on shingle beside the Grisedale Beck, Glenridding (4), well established but near market gardens, denizen, A. J. FARMER. *†88, Mid-Perth; edge of island in the Tay, Ballinluig, M. S. CAMPBELL.

23/1. GLAUCIUM FLAVUM Crantz. †21, Middx.; a single plant on a rubbish tip, Hanwell, D. H. KENT.

§32/1. FUMARIA CAPREOLATA L. *15, E. Kent; Abbey garden, Northbourne, 1946, J. H. P. SANKEY, det. H. W. PUGSLEY, comm. D. H. KENT.

32/4. FUMARIA PURPUREA Pugsl. 71, Man; base of clay cliffs N. of Ramsey, appearing indigenous, J. A. WHELLAN, det. H. W. PUGSLEY.

32/9b. Fumaria Bastardii Bor. var. hibernica Pugsl. 71, Man; cliffs at Laxey, appearing indigenous, J. A. Whellan, det. H. W. Pugsley.

32/10b. Fumaria officinalis L. var. elegans Pugsl. 3, S. Devon; Preston Down, Paignton, 1944: S. C. Patterson, det. H. W. Pugsley—new to v.-c. 3 (Day and Brokenshire, 1945: 64).

32/10d. Fumaria officinalis L. var. Wirtgeni Haussku. 3, S. Devon; Wanberry Hill, Torquay, 1944, S. C. Patterson, det. H. W. Pugsley, new to v.-c. 3 (Day and Brokenshire, 1945: 64).

35/1. Nasturtium officinale R. Br. *sens. str.* 9, Dorset; Wyke Regis, 1925, R. Melville, as var. *siifolium*; 10, Wight; Alverstone, 1925, R. Melville; 37, Worcs.; Malvern Wells, 1889, R. F. Towndrow, as var. *siifolium* (Reichb.) Koch; 41, Glam.; Ystrad, 1877, A. Langley; 43. Radnor; Bottledock, Bach Howey, 1929, A. E. Wade, as var. *parvifolium* Peterm.; 44, Carm.; near Kidwelly, 1930, A. E. Wade; 47. Mont.: Newtown, 1939, J. A. Webb; 48, Mer.; near Nannau, 1941, J. A. Webb.

*35/1(2). Nasturtium uniseriatum Howard et Manton. 6, N. Som.; dyke below Brean Down, 1921, Mrs C. I. Sandwith; canal, Limpley Stoke, 1899, C. Bucknall, specimen in his herbarium in Herb. Univ. Bristol (this locality may be just in Wilts.). Comm. and det. N. Y. Sandwith. 9, Dorset; near Wimborne, 1892, E. F. Linton. 17, Surrey; Sheen Common, 1912, John Divers; Lower Morden, 1911, C. E. Britton, as *N. officinale* var. *microphyllum*. 30, Beds.; it seems as common as *N. officinale*, J. G. Dony. 32, Northants; Thornhaugh, 1903, H. H. Slater. 35, Mon.; Mounton, 1891, W. A. Shoolbred; Rumney, 1922, A. E. Wade. 37, Worcs.; near Burford Tenbury, 1878, John Fraser, as *N. officinale* var. *siifolium*. 41, Glam.; Fairwater, 1920. A. E. Wade. 42, Brec.; Llangorse Lake, 1925, A. E. Wade. 45. Pemb.; Dowrog Moor, 1937, H. A. Hyde and A. E. Wade, as *N. officinale* var. *microphyllum*. 49, Caern.; near Bangor. 1882, J. E. Griffith; between Bangor and Caernarvon, 1876, J. T. Cheswick Williams. 50, Denb.; near Eglwysbach, 1928, A. Wilson. 52, Angl.; Cors Bodeilio, 1930, A. Wilson. 55, Leics.: Anstey Lane. 1915, A. E. Wade. 106, E. Ross: near Tain, 1897, W. A. Shoolbred.

§36/5. Barbarea intermedia Boreau. *88, M. Perth; sandy spit north side of Loch Rannoch, M. S. Campbell; near Ballinluig, M. S. Campbell and A. J. Wilmott.

37/6. Arabis glabra (L.) Bernh. 16, W. Kent: Larkfield Heath, D. McClintock, comm. F. Rose.

†37/9. Arabis rosea DC. 4. N. Devon: Northam, Milner, 1944 (Day and Brokenshire, 1945: 58).

†37/12. Arabis caucasica Willd. 57, Derbs.; (L.), limestone rocks and walls, Cromford; Crich, 1945, D. P. Young.

39/2. Cardamine amara L. 40, Salop; wet wood, foot of Ercall Hill, Wellington, E. C. Wallace.

39/7. Cardamine bulbifera (L.) Crantz. 21, Middx.; still abundant at Garret Wood, Springwell, where it was first recorded in 1855: Harefield Grove, where it was first recorded in 1853: wood close to Jack's Lock, Harefield, all records 1945, D. H. Kent. 39, Staffs.; Yoxall, plentiful in a wood near Yoxall Lodge, 1945, C. Clarke, comm. E. S. Edees.

†41/1. Aubrieta deltoidea DC. 57, Derbs.; limestone cliff, Cromford, 1943, D. P. Young.

§44/1. Erophila verna (L.) E. Meyer. *73, Kirkc.; track by Carlingwark Loch near Castle Douglas, H. Milne-Redhead.

§45/7. Cochlearia danica L. †*38, Warw.; abundant on railway track outside Rugby station, E. C. Wallace.

49/2. Sisymbrium Sophia L. †3, S. Devon; established in Portland Avenue, Exmouth, J. J. Stuart Edwards.

49/6b. Sisymbrium officinale (L.) Scop. var. leiocarpum DC. 33, E. Glos.; Flour Mills, Tewkesbury, plentiful, C. W. Bannister, comm. W. R. Price.

§49/7. Sisymbrium Thaliana (L.) Gay. *110, O. Hebr.; Hellisdale, S. Uist, W. A. Clark (1946: *Vasc. Subst.*, *31*, 24).

60/1. Coronopus didymus (L.) Sm. 23, Oxon.; (5), abundant in a small patch of cultivated ground at Radcot Bridge, T. R. Davey.

§61/2. Lepidium latifolium L. *†21, Middx.; banks of the Colne near Drayton Ford, 1939, D. H. Kent: canal bank in several places near Harefield, 1945, B. Welch, comm. D. H. Kent. *†24, Bucks.; bank of the Colne, Denham, D. H. Kent.

†61/24. Lepidium neglectum Thell. 21, Middx.; rubbish tip, Hanwell, N. Y. Sandwith and D. H. Kent, det. N. Y. Sandwith.

†74/1. Bunias Erucago L. 30, Beds.; waste ground, Luton, H. B. Souster, det. A. J. Wilmott, comm. J. G. Dony.

†74/2. Bunias orientalis L. 60, W. Lancs.; established in some quantity at Fleetwood Docks, J. A. Whellan.

75/1. Crambe maritima L. 14, E. Suss.; abundant on the S. coast, viz.:—at Cuckmere Haven: from the Crumbles to Cooden; and from Cliff End right to the Kent border, F. Rose and W. J. L. Sladen. 15,

E. Kent; abundant on the S. coast, from the Sussex border eastwards to N. of Dungeness; also below Abbotscliff: and N. of Kingsdown:—shows apparently, a great increase since 1939, as pre-war recorders speak of it as becoming rarer in v.cc. 14 and 15, F. Rose. 71, Man; sparingly on the beach at Dhoon and Poyll Vaaish, J. A. Whellan.

80/2. Raphanus maritimus Sm. 15, E. Kent; near the Wicks, Dungeness, 1946, W. J. L. Sladen, comm. F. Rose.

†85/1. Reseda alba L. 21, Middx.; waste ground in Chelsea Square. S.W.3, R. Graham.

88/6b.×4. Viola canina L. var. ericetorum (Hayne) Rchb. × Riviniana Rchb. 60, W. Lancs.; two patches on sand-dunes at Ansdell where *V. canina* is abundant, but *V. Riviniana* is very rare though it grows about 30 yards from the hybrid, J. A. Whellan and H. E. Bunker, det. A. J. Wilmott.

88/8h. Viola odorata L. var. subcarnea (Jord.) Parlat. 15. E. Kent; several patches on road banks, Old Wives Lees, 1945, D. H. Kent.

§88/23. Viola segetalis Jord. *89, E. Perth; near Pitlochry, Mrs Evetts, det. A. J. Wilmott.

§88/30. Viola derelicta Jord. *39, Staffs.; Mavesyn Ridware, near Bentley Farm in a field of ripening corn, 1945, E. S. Edees (3900), det. Mrs E. Drabble, who wrote "good *derelicta*."

92/2. Dianthus deltoides L. 52, Anglesea; rocks near the Warren, Newborough, 1941, D. P. Young (1391).

†95/1. Saponaria officinalis L. 49, Caern.; Llanfairfechan, 1938, D. P. Young.

†95/1b. Saponaria officinalis L. var. hirsuta Wierzb. 28, W. Norfolk; a fair-sized patch on the sand-dunes between Holme House and Gore Point, Holme-next-the-Sea, Dr J. N. Mills and J. P. M. Brenan (7404).

§96/1. Silene maritima (Hornem.) With. †*17, Surrey; rubbish dump, Wimbledon Common, J. E. Lousley and J. E. Woodhead.

96/3. Silene conica L. 25, E. Suff.; in two spots at Sizewell, E. C. E. Leadbitter.

98/9. Lychnis Githago (L.) Scop. 17, Surrey; field between Oxted and Godstone, C. D. Pigott.

100/2. Cerastium arvense L. 56 and 57, Notts. and Derbs.; by the R. Trent on the Notts. and Derbs. border, R. H. Hall.

100/4. CERASTIUM ARCTICUM Lange. 49, Caern.; stream débris. Cwm Brwynog, 1250 ft., in great quantity, doubtless washed down from Clogwyn Du'r Arddu, 1943, D. P. YOUNG.

100/9. CERASTIUM TETRANDRUM Curt. 15, E. Kent; 8 miles from the sea, at Brabourne Lees, with *Festuca ambigua*, F. ROSE.

†100/12. CERASTIUM TOMENTOSUM L. 21, Middx.; several large well-established patches on waste land near the Thames at Chiswick, D. H. KENT.

101/7. STELLARIA GRAMINEA L. 109, Caithn.; "with light purple stamens giving the effect of pale-lilac coloured flowers, from banks of the Thurso river", Mrs J. V. PHELPS, det. J. F. G. CHAPPLE. Similar to the plant from Sussex referred to in *B.E.C. 1907 Rep.*, 280; 1908. [Dissection of flower of this Thurso plant shows abortion of petals, and stamens infected by a smut fungus.—ED.] [Doubtless the common smut on Caryophyllaceae, *Ustilago violacea* (Pers.) Rous.—H.K.A.S.]

102/8. ARENARIA TENUIFOLIA L. 6, N. Som.; near summit of Crooks Peak, Compton Bishop, J. E. LOUSLEY and C. WEST.

102/12. ARENARIA SEDOIDES (L.) Druce. 106, E. Ross; very abundant on quartzite, Meall Diamhain and Creag Liath, head of Glen Oykell, E. C. WALLACE.

†102/14. ARENARIA BALEARICA L. 47, Mont.; near waterfall, south side of Lake Vyrnwy, no houses on that side of lake, Miss D. CADBURY, comm. C. M. ROB.

§103/10. SAGINA MARITIMA Sm. *16, W. Kent; near Upnor, J. E. LOUSLEY, comm. F. ROSE.

§106/1. POLYCARPON TETRAPHYLLUM (L.) L. †*17, Surrey; for second year in garden at Hindhead, Miss MARION WHITELAW *per* Mrs B. WELCH, comm. J. E. LOUSLEY.

†108/2. CLAYTONIA PERFOLIATA Donn. 22, Berks.; (2) Foxcombe Hill, A. F. TWIST. 21, Middx.; established as a flower bed weed in Hanger Hill Park, Ealing, F. P. D. BOUCHER and D. H. KENT.

§112/7. HYPERICUM MONTANUM L. 16, W. Kent; in three localities about Darenth Wood, 1946, whence it was recorded about 1700 (Doody), F. ROSE. 39, Staffs.; Wetton, on high ground above Thor's Cave, 1945, T. J. WALLACE, comm. E. S. EDEES (4175).

§112/12×14. HYPERICUM DUBIUM Leers × PERFORATUM L. (×H. DESETANGSII Lamotte). 16, W. Kent; on gravelly ground by the R. Medway near Cannon Bridge, Tonbridge, 1936, J. P. M. BRENAN (3062); *24, Bucks.; lane between Cadmore End and Fingest, *H. perforatum* nearby but no *H. dubium* seen, N. Y. SANDWITH.

§112/16. Hypericum linariifolium Vahl. *43, Radnor; on rocks at 1400 ft. within a few miles of Llandrindod Wells, July 1945, N. Y. Sandwith.

117/2. Malva sylvestris L. 3, S. Devon; one plant with white flowers (except for a faintest pink tinge in bud) in a grass field on top of the cliffs between Branscombe Mouth and Beer Head, J. P. M. Brenan.

†118/1. Sida spinosa L. 21, Middx.; forecourt of flourmill belonging to Soya Foods Ltd., Springwell Lock, near Harefield, 1945, D. H. Kent.

†120/1. Abutilon Theophrasti Med. 21, Middx.; a single plant by the canal near Springwell Lock, 1945, B. Welch, comm. D. H. Kent: several plants in the grounds of Soya Foods Ltd., Springwell Lock, 1946, J. E. Lousley, J. P. M. Brenan, J. G. Dony, J. E. Woodhead and D. H. Kent: rubbish tip, Hanwell, 1946, D. H. Kent.

†122/1. Hibiscus Trionum L. 21, Middx.; a single plant by the canal near Springwell Lock, 1945, D. H. Kent.

†127/2. Geranium versicolor L. 21, Middx.; hedgebank near Elstree, D. H. Kent.

†127/5. Geranium phaeum L. 17, Surrey (3b); Friday Street, 1943, J. A. Young, comm. D. P. Young (1612).

127/7b. Geranium pyrenaicum Burm. f., var. pallidum (Druce) Wilmott. 29, Cambs.; churchyard of Little St Mary's, Cambridge, 1946, Dr J. N. Mills and J. P. M. Brenan (7407) as f. *pallidum*. It was evidently overlooked that *G. pyrenaicum* f. *pallidum* Stearn et Gilmour, 1932: *Journ. Bot.*, *70*, Suppl. p. 6, is a later homonym of *G. pyrenaicum* f. *pallidum* ["pallida"] Druce, 1921: *B.E.C. 1920 Rep.*, 17; and doubtless the two names are synonymous also.—J.P.M.B.

127/10b. Geranium molle L. var. aequale Bab. 35, Mon.: Llandegfedd, 1946, A. E. Wade, comm. Nat. Mus. Wales.

127/13. Geranium lucidum L. 66, Durham; recorded as flowering twice in 1945, J. W. H. Harrison (1945: *Vasc. Subst.*, *30*, 53).

127/15. Geranium purpureum Vill. 2, E. Cornw.; base of sea cliffs, Veryan Bay, R. C. L. Burges and L. T. Medlin.

128/2. Erodium moschatum (L.) L'Hérit. †30, Beds.; Sandy; Flitwick; Shefford, J. G. Dony.

128/3f. Erodium cicutarium (L.) L'Hérit. var. pimpinellifolium (Sibth.) DC. 59, S. Lancs.; on peaty soil, field, edge of Simonswood Moss, near Rainford, A. J. Farmer

§†133/2. Impatiens capensis Meerb. *56, Notts.; River Leen at Papplewick (Sept. 1946), R. H. Hall.

†133/3. Impatiens parviflora DC. 22, Berks.; (2) waste ground near Folly Bridge (Oxford), A. F. Twist. 57, Derbs.; banks of R. Derwent near Wilne, R. H. Hall.

†142/3. Acer platanoides L. 17, Surrey; (2) Woodmansterne, seeding freely from planted trees in a coppice, 1940, D. P. Young (1161).

†147/4. Genista hispanica L. 34, W. Glos.; Clifton Downs, top of St Vincent's Rocks, Bristol, 1921, A. E. Ellis, det. J. F. G. Chapple, 1938.

149/2. Ulex Gallii Planch. 73, Kirkc.; abundant on sea cliffs, Portowarren, R. Mackechnie and E. C. Wallace.

151/3. Ononis spinosa L. 39, Staffs.; Thorpe Constantine, a small patch by the side of a path through a ploughed field, E. S. Edees (5057).

152/1. Trigonella ornithopodioides (L.) DC. 41, Glam.; cliffs, Horton, Gower, Miss P. Simons, det. and comm. E. Vachell.

†152/2. Trigonella Foenum-graecum L. 39, Staffs.; allotments, Bass's Brewery, Burton-on-Trent, R. C. L. Burges, det. J. P. M. Brenan.

153/1. Medicago falcata L. †90, Angus; Ninewells near Dundee, J. Sinclair and U. K. Duncan, comm. U. K. Duncan.

153/6f. Medicago minima (L.) Bartal. var. viscida Koch. 26, W. Suff.; sandy, grassy ground near Tuddenham, Dr J. N. Mills and J. P. M. Brenan (7392). Previously only recorded as an alien, and so printed in *B.P.L.*, Ed. 2, but, although close to a village, we had no reason to doubt its nativity in the above locality, growing as it was with a typical Breckland flora.

†154/3. Melilotus arvensis Wallr. 59, S. Lancs.; waste ground, near shore, Aigburth, Liverpool, A. J. Farmer.

†154/4. Melilotus indica (L.) All. 60, W. Lancs.; waste land, Warton near Lytham, E. C. Wallace. 90. Angus; Ninewells near Dundee, U. K. Duncan.

155/11. Trifolium striatum L. 57, Derbs.; banks of Trent, near Thrumpton, R. H. Hall.

155/12. Trifolium subterraneum L. †30, Beds.; gravel pit, Eaton Socon, E. Milne-Redhead and P. Taylor. 57, Derbs.; banks of Trent, near Trumpton, R. H. Hall.

§155/17. Trifolium glomeratum L. *30, Beds.: Eaton Socon, E. Milne-Redhead.

§155/18. Trifolium suffocatum L. 14, E. Suss.; on shingle, Langrey Point near Eastbourne, Aug. 1946, J. E. Lousley, R. J. Libbey, and W. J. L. Sladen. *61, S.E. Yorks.; Kilnsea Warren, R. D'O. Good (1946: *Nat.*, 819, pp. 133-136, 155).

156/1. Anthyllis Vulneraria L. 21, Middx.; waste land adjoining A.E.C. Works, Windmill Lane, Southall, 1942, D. H. Kent.

160/6. Lotus tenuis Waldst. & Kit. 17, Surrey; (8) Addington, 1949, D. P. Young (1225).

†166/5. Astragalus hamosus L. 39, Staffs.; allotments, Worthington's maltings, Burton-on-Trent, R. C. L. Burges, det. J. P. M. Brenan.

176/1. Vicia sylvatica L. 15, E. Kent: still at Aldington Knowle (first seen here by G. E. Smith about 1820): Swanton Banks, Lydden (teste Miss D. Long): still abundant in Covert Wood, Kingston: F. Rose.

†176/5. Vicia villosa Roth. 21, Middx.; rubbish tip, Hanwell, D. H. Kent, det. N. Y. Sandwith.

†176/6. Vicia dasycarpa Ten. 17, Surrey; Holmwood, in a rick-yard, 1945, J. E. Lousley (1946: 14, as *V. villosa* ssp.); a single plant by roadside between Puttenham and Cutt Mill, 1946, W. E. Warren, det. A. J. Wilmott.

176/7. Vicia bithynica (L.) L. 15, E. Kent; cliffs at Minster-in-Sheppey, F. Rose.

176/8b. Vicia sepium L. var. ochroleuca Bast. 66, Durham; roadside between Bowburn and Quarrington Hill, 1945, J. W. H. Harrison (*Vasc. Subst.*, *30*, 48).

†177/1a. Lens culinaris Medik. subsp. esculenta (Moench) Briq. 30, Beds.; rubbish dump, Sundon, J. G. Dony, det. N. Y. Sandwith.

§178/3. Lathyrus tuberosus L. †*30, Beds.; near Luton and Dunstable Hospital, F. L. Chesham: Barton, Herts. Nat. Hist. Soc. Excursion: Ampthill, Miss Oldfield, comm. J. G. Dony. †*73, Kirkc.; hedgebank, Sandyhills, Portowarren, E. C. Wallace.

178/8. Lathyrus Nissolia L. 22, Berks.; (2) stone quarry, Rockley, Cumnor, Susan Chapple, comm. J. F. G. Chapple.

178/9. Lathyrus Aphaca L. 3, S. Devon; within a mile of Exmouth, J. J. Stuart Edwards. 29, Cambs.; abundant by a track through cornfields near Toft, Dr J. N. Mills and J. P. M. Brenan (7394).

†183/1. Prunus Lauro-Cerasus L. 41, Glam.; bird-sown at Clyne, Gower, and elsewhere, J. A. Webb, comm. E. Vachell.

183/2. Prunus Padus L. †15, E. Kent; Brotherhood Wood, N. of Canterbury, looking native and seeding freely, Miss D. Long, comm. F. Rose. 29, Cambs.; several trees scattered in damp fen woodland, Chippenham Fen, Dr J. N. Mills and J. P. M. Brenan—the presence of bird-cherry here seems hardly to be covered by A. H. Evans' brief comment (1939: *Fl. Cambs.*, 69) that it "occurs as a garden escape or where planted," and suggests that there may be something to be said in favour of its nativity in the county.

183/4. Prunus Cerasus L. 71, Man; in hedges at several places, Dreemsberry, Graeve, Baldhoon, Ballaglas, J. A. Whellan.

†§184/10. Spiraea salicifolia L. *41, Glam.; Swansea area, rare, J. A. Webb, comm. E. Vachell.

186/1. Dryas octopetala L. 49, Caern.; Cowlyd district, a new locality, Evan Roberts, comm. A. Wilson.

189/4. Potentilla argentea L. 17, Surrey; towpath near Ham, 1945, Mrs B. Welch, 1945 (Lousley; 1946: 13).

189/5. Potentilla Crantzii Beck. 69, Westm.; still in good quantity on rocks by the Maize Beck; 70, Cumb.; sparingly on limestone rocks by the Crowdundle Beck, R. M. Payne and J. A. Whellan.

189/8. Potentilla procumbens Sibth. 104, N. Ebudes; Canna (J. W. H. Harrison, 1939E: 100); Kinloch, Rhum (1946: *Vasc. Subst.*, *31*, 24, 31).

†189/11. Potentilla norvegica L. 21, Middx.; waste ground in Chelsea Square, S.W.3, R. Graham.

†189/13. Potentilla recta L. 29, Cambs.; plentiful on waste ground at the back of a college, Cambridge (said to have been grown in an adjacent garden), Dr J. N. Mills and J. P. M. Brenan (7378).

190/5. Alchemilla pastoralis Buser. 66, Durham; in another locality more than a mile to the east of Langdon Beck, C. I. and N. Y. Sandwith, confirmed by S. M. Walters.

194/2a. Rosa arvensis Huds. var. vulgaris Ser. f. hispida Lej. & Court. 9, Dorset; area of Callow Farm, Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 151).

194/2g. ROSA ARVENSIS Huds. var. LAEVIPES Grem. 9. Dorset; Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 152) [as var. *vulgaris* forma].

194/5d. ROSA STYLOSA Desv. var. SYSTYLA (Bast.) Baker. 16, W. Kent; by R. Medway near Hartlake Bridge, N.E. of Tudeley Hale, 1939: Trench Wood near Tonbridge, 1939, J. P. M. BRENAN.

194/6j. ROSA CANINA L. var. SENTICOSA (Ach.) Baker f. MUCRONULATA (Déségl.) W.-Dod. 9, Dorset; Callow Farm area, Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 154).

194/6r. ROSA CANINA L. var. RAMOSISSIMA Rau. 9, Dorset; Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 154).

194/7b. ROSA CANINA L. var. DUMALIS (Bechst.) Dum. f. CLADOLEIA (Rip.) W.-Dod. 9, Dorset; Corfe Common. A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 154).

194/7e. ROSA CANINA L. var. STENOCARPA (Déségl.) Rouy. 9, Dorset; Callow Farm Area, Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 154).

194/7h. ROSA CANINA L. var. DUMALIS (Bechst.) Dum. f. VIRIDICATA (Pug.) Rouy. 9, Dorset; Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 154).

194/7m. ROSA CANINA L. var. SYLVULARUM (Rip.) W.-Dod. 16, W. Kent; by a backwater of R. Medway below Tonbridge, 1938, J. P. M. BRENAN.

194/8e. ROSA CANINA L. var. VERTICILLACANTHA (Mér.) Baker. 16, W. Kent; waste, grassy ground near the pottery works, Tonbridge, 1936, J. P. M. BRENAN.

194/9b. ROSA CANINA L. var. BLONDAEANA (Rip.) Rouy f. VINACEA (Baker) Rouy. 9, Dorset; near Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 155).

194/10f. ROSA DUMETORUM Thuill. var. GABRIELIS (F. Gér.) R. Kell. 9, Dorset; between the Stoborough-Arne road and the River Frome, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1946: 143).

194/10g. ROSA DUMETORUM Thuill. var. CALOPHYLLA Rouy. 9, Dorset; Corfe Castle, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 155).

194/14c. ROSA MICRANTHA Sm. var. SEPTICOLA (Déségl.) Gren. 41, Glam.; lime quarry, Newton Nottage, 1944, Miss M. THOMAS, det. R. MELVILLE.

194/15. Rosa rubiginosa L. var. typica W.-Dod. 15, E. Kent: shingle between the Hope and Anchor inn and the ponds, Dungeness, 1936, N. Y. Sandwith and J. P. M. Brenan (3049).

194/15. Rosa rubiginosa L. var. typica W.-Dod. 16, W. Kent; roadside not far from Port Victoria, 1937, J. P. M. Brenan (3547).

194/15f. Rosa rubiginosa L. var. echinocarpa (Rip.) Gren. 9, Dorset; Stoborough Heath, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 156). 16, W. Kent; thicket on railway bank between the Old Barn and the Flying Dutchman inn, near Hildenborough, 1934. J. P. M. Brenan (721a): chalk downs near Upper Halling, 1939, J. P. M. Brenan (6126).

194/19a. Rosa tomentosa Sm. var. typica Chr. 41, Glam.; hedge. Duffryn, near Cardiff, 1943, E. Vachell, det. R. Melville: Kenfig Hill, and Cornelly, 1944, Miss M. Thomas.

194/19f. Rosa tomentosa Sm. var. scabriuscula Sm. 41, Glam.; Nash Point, E. Vachell, det. R. Melville.

194/19f. Rosa tomentosa Sm. var. scabriuscula (Winch) f. moretonensis W.-Dod. 41, Glam.; lime quarry, near Newton Nottage, 1944, Miss M. Thomas, det. R. Melville.

194/20e. Rosa Sherardi Davies var. pseudo-mollis (E. G. Baker). 41, Glam., Kenfig Hill, and Cornelly, 1943, Miss M. Thomas, det. R. Melville.

194/23b. Rosa spinosissima L. var. pimpinellifolia (L.) Druce. 41, Glam.; dunes, Kenfig, 1936, E. Vachell, det. Col. Wolley-Dod.

194/23c. Rosa spinosissima L. var. rosea (Koch.) W.-Dod. 9, Dorset; off the Corfe Castle-Wareham road, A. E. A. Dunston, det. E. B. Bishop (Dunston, 1945: 153, as var. *pimpinellifolia* forma).

†194/26b. Rosa rugosa Thunb. var. alba W. Robins (var. albiflora Koidz.). 60, W. Lancs.; in plenty, with the typical form, and fully naturalised in one place on dunes at St Annes, J. A. Whellan, det. N. Y. Sandwith.

§195/8. Sorbus Mougeoti Soy.-Will. et Godr. var. anglica Hedl. *4, N. Devon; sea cliffs near Sandabay, Berrynarbor, 1944, H. W. Pugsley.

§†197/2. Cotoneaster microphyllus Wallich. *9, Dorset; Portland. Miss E. Morse, det. J. F. G. Chapple.

†197/3. Cotoneaster Simonsii Baker. 49, Caern.; Haulfre, Llandudno, 1941, D. P. Young.

199/1. SAXIFRAGA AIZOIDES L. 98, M. Argyll; Ben Douran, a form with orange petals and deep red centre locally frequent, JOHN RAVEN, comm. J. E. LOUSLEY.

199/17. SAXIFRAGA GRANULATA L. 20, Herts.; Chorley Common, 1941, D. H. KENT.

§199/22. SAXIFRAGA HIRCULUS L. ‡91, Kinc.; ‡109, Caithn.; see *Top. Bot. Suppl., II*, and A. Bennett, 1912: *Scottish Bot. Rev.*, 205-208.

214/1. HIPPURIS VULGARIS L. 56, Notts.; pond near Felley Mill, R. H. HALL.

217/6. CALLITRICHE AUTUMNALIS L. 69, Westm.; in the Lancaster and Kendal Canal at Hincaster, H. BLACKLER (1946: *N.W. Nat.*, *21*, 257).

217/7b. CALLITRICHE TRUNCATA Guss. var. OCCIDENTALIS (Rouy) Druce. 16, W. Kent; extremely abundant, but neither flowering nor fruiting, in the R. Darenth for a considerable distance W. of the road from Dunton Green to Riverhead; none seen E. of the road, 1946, J. P. M. BRENAN (7466).

220/1. EPILOBIUM ANGUSTIFOLIUM L. 17, Surrey; several patches of white-flowered plants on Wisley Common, 1945 and 1946, M. BELL, comm. E. C. WALLACE.

220/4×8. ×EPILOBIUM PERSICINUM Rchb. 30, Beds.; Yelden, J. G. DONY, det. G. M. ASH (as *E. parviflorum* × *roseum*).

§220/6. EPILOBIUM LAMYI F. Schultz. *28, W. Norf.; abundant in sand-dune slacks between Hunstanton and Holme-next-the-sea, Dr J. N. MILLS and J. P. M. BRENAN (7398), confirmed by G. M. ASH.

220/6×4. ×EPILOBIUM PALATINUM F. Schultz. 28, W. Norf.; one large plant with the parent species in sand-dune slacks between Hunstanton and Holme-next-the-sea, 1946, Dr J. N. MILLS and J. P. M. BRENAN (7399), confirmed by G. M. ASH (as *E. Lamyi* × *parviflorum*).

§†220/7(2). EPILOBIUM ADENOCAULON Haussk. 16, W. Kent; by a large, water-filled gravel-pit W. of the road between Dunton Green and Riverhead, J. P. M. BRENAN. *24, Bucks; lane and wood-border between Chalfont and Chorley Wood, June 1946, N. Y. SANDWITH, confirmed by G. M. ASH. *29, Cambs.; waste ground by the river in centre of town, Cambridge, J. P. M. BRENAN and Dr J. N. MILLS, confirmed by G. M. ASH. *35, Monmouth: wall of railway bridge between Monmouth and Raglan, June 1946, N. Y. SANDWITH, confirmed by G. M. ASH.

220/7(2)×3. EPILOBIUM ADENOCAULON Hausskn. × HIRSUTUM L. 30, Beds; brick-pit pool, Eaton Socon, N. Y. SANDWITH, confirmed by G. M. ASH.

220/7(2)×10. EPILOBIUM ADENOCAULON Haussk. × MONTANUM L. 12, N. Hants.; clearing in wood with abundance of *E. adenocaulon* and a little *E. montanum*, Upping Copse in S.W. part of Harewood Forest, R. BURN and J. P. M. BRENAN (7418), confirmed by G. M. ASH.

220/7(2)×14. EPILOBIUM ADENOCAULON Haussk. × PALUSTRE L. 12, N. Hants.; one large plant by a boggy stream, The Chase, E. of Broad Laying, near Highclere, R. BURN and J. P. M. BRENAN (7415), confirmed by G. M. ASH.

§220/9. EPILOBIUM LANCEOLATUM Seb. et Maur. *24, Bucks; gravelly roadside bank near Chalfont, N. Y. SANDWITH, confirmed by G. M. ASH. Excluded by Druce, *Fl. Bucks*, p. 146, as requiring confirmation.

220/9×10. EPILOBIUM LANCEOLATUM Seb. & Maur. × MONTANUM L. 24, Bucks.; gravelly roadside bank near Chalfont, N. Y. SANDWITH, confirmed by G. M. ASH.

220/9×1. EPILOBIUM LANCEOLATUM Seb. & Maur.×OBSCURUM Schreb. 3, S. Devon; wall at Lustleigh, 1941, J. P. M. BRENAN (6607), det. G. M. ASH.

220/10×4. EPILOBIUM MONTANUM L. × PARVIFLORUM Schreb. 30, Beds.; Aspley Woods, J. G. DONY, det. G. M. ASH.

220/12. EPILOBIUM ALSINIFOLIUM Vill. 64, M.W. Yorks.; spring-head amongst moss, Buckden, Upper Wharfedale, J. N. FRANKLAND, confirmed by G. M ASH.

†220/17. EPILOBIUM PEDUNCULARE A. Cunn. 69, N. Lancs.; between Furness Abbey and Dalton, G. M. BROWN, det. W. R. PHILIPSON. 70, Cumb.; in a steep, semi-filled gully, Thirlmere side of Helvellyn, at 2000 feet, on a damp rock, associated with *Chrysosplenium oppositifolium* L. and *Cochlearia alpina* Wats., A. J. FARMER. 88, M. Perth; roadside near Pass of Glenlyon, R. D. GRAHAM, det. A. J. WILMOTT and J. P. M. BRENAN.

§†223/2. OENOTHERA LAMARCKIANA De Vries. *41, Glam.; sand-dunes near Horton, Gower, very abundant, origin, garden escape, 1945, J. A. WEBB, E. VACHELL, and P. SIMONS.

225/3. CIRCAEA ALPINA L. 70, Cumb.; moist, rocky place in Johnny's Wood, Borrowdale, J. A. WHELLAN, confirmed by J. E. LOUSLEY.

†239/1. ERYNGIUM CAMPESTRE L. 12, N. Hants.; Mapledurwell, 1945, W. BOYD WATT.

244/1. SMYRNIUM OLUSATRUM L. 52, Anglesey; Priestholm ("Puffin Island"), " running wild all over the island except below c. 50 feet: the island is now uninhabited but there was a telegraph station there about 40 years ago, and monks in the old days," Col. G. C. HILL, comm. A. J. WILMOTT.

245/3. BUPLEURUM ROTUNDIFOLIUM L. 12, N. Hants.; Mapledurwell, 1945, W. BOYD WATT.

247/5. APIUM INUNDATUM (L.) Rchb. f. 30, Beds.; Tempsford, Miss I. J. ALLISON, comm. J. G. DONY. 57, Derbs.; pool near Trent rifle range, R. H. HALL.

†250/1. CARUM CARVI L. 21, Middx.; bombed site, Northfields Avenue, West Ealing, 1945, D. H. KENT.

250/4. CARUM SEGETUM (L.) Benth. & Hook. f. 29, Cambs.; high grassy bank by roadside in Caldecote village, J. P. M. BRENAN and Dr J. N. MILLS.

251/1. SISON AMOMUM L. 39, Staffs.; Clifton Campville. frequent in hedgerows near Haunton, E. S. EDEES (5477).

§253/2. SIUM ERECTUM Huds. *104, N. Ebudes; (Skye) stream at Camas Mór near Kilmuir; 1945, C. D. PIGOTT.

255/1. PIMPINELLA MAJOR Huds. 56, Notts.; near Annesley, R. H. HALL.

257/1. MYRRHIS ODORATA (L.) Scop. †41, Glam.; field by cottage near Stormy Down, Pyle, Miss M. THOMAS and Mr WILLAN, 1945, comm. E. VACHELL.

§265/2. OENANTHE FLUVIATILIS Coleman. *64, M.W. Yorks.; River Cock, between Stutton and Tadcaster, Mrs J. APPLEYARD, confirmed by W. A. SLEDGE (see *Nat.*, 138, 1946).

274/1b. ANGELICA SYLVESTRIS L. var. DECURRENS Lallemant. 9, Dorset; hedgerow bank near Chamberlain's Farm, Bere Regis, 1946. N. DOUGLAS SIMPSON (46007)—the leaves shortly pubescent, but the ordinary form here has the leaves glabrous.

†276/4. ANETHUM GRAVEOLENS L. 21, Middx.; rubbish tip, Hanwell, 1946, D. H. KENT.

†276/5. PEUCEDANUM OSTRUTHIUM Koch. 70, Cumb.; Aira Beck, Dowthwaite Head at 1250 ft., W. ATKINSON, comm. CARLISLE MUSEUM.

283/4. Caucalis arvensis Huds. 17, Surrey; gravel pit, Eastby End, Thorpe, 1945, J. E. Lousley.

†285/3. Cornus stolonifera Michx. 41, Glam.; Mayals, Margam, etc., J. A. Webb, comm. E. Vachell.

§†287/3. Sambucus Ebulus L. *60, W. Lancs.; naturalised by the docks at Fleetwood, J. A. Whellan.

288/1. Viburnum Opulus L. 108, W. Suth.; one bush, Amhuinn a' Ghlinne Dhuibh, Loch Glendhu, Miss C. W. Muirhead, comm. Carlisle Mus.

288/1b. Viburnum Opulus L. var. xanthocarpum Spaeth. 17, Surrey; with the typical form in a thicket above Gomshall, Sept. 1945, N. Y. Sandwith (see 1946: *N.W. Nat.*, 1945, 274, and Plant Notes).

†292/1. Leycesteria formosa Wallich. 49, Caern.; Llanfairfechan, 1938, D. P. Young (864). 71, Man; fully established in some quantity on cliffs near Laxey, 1945-6, J. A. Whellan, det. A. B. Jackson.

296/5. Galium pumilum Murray. 24 Bucks.; chalk slope near Loudwater, R. Graham and N. Y. Sandwith: Druce, *Fl. Bucks*, p. 170, gives only one locality, in the Thames District.

296/2×9. Galium Mollugo L. × verum L. 6, N. Som.; Lansdowne, Bath, F. M. Barton.

§†296/12b. Galium spurium L. var. Vaillantii DC. *16, W. Kent; East Malling, C. West, comm. F. Rose (as *G. Vaillantii* DC.).

†301/4. Valeriana pyrenaica L. 70, Cumb.; banks of the Carwinley Burn on the Netherby road, R. Martindale and T. L. Johnston, comm. Carlisle Museum. 71, Man; naturalised in great quantity by the stream in Glen Poy, J. A. Whellan.

304/3. Valerianella dentata (L.) Poll. 41, Glam.; amongst corn near Nottage, Porthcawl, 1945, Miss M. Thomas.

304/3b. Valerianella dentata (L.) Poll. var. mixta (L.) Dufr. 49. Caern.; limestone scree above Happy Valley, Great Orme, 1942, D. P. & J. A. Young (1485)—recorded by Griffiths (1895: *Fl. Angl. and Caern.*) as " disappearing fast."

308/4. Scabiosa Succisa L. 109, Caithn.; a pink-flowered plant somewhat abundant with the normal plant in pasture about Altimarloch, Wick, E. C. Wallace (5603).

†318/11. Aster versicolor Willd. 23, Oxon.; Shotover Hill near Oxford, 1924, A. E. Ellis, det. C. E. Britton, 1939.

324/5b. FILAGO MINIMA Pers. var. SUPINA (DC.) Rouy. 26, W. Suffolk; locally plentiful on open sandy ground near Pilgrim's Path N.N.E. of Icklingham, 1946, Dr J. N. MILLS and J. P. M. BRENAN (7390).

§†333/1. INULA HELENIUM L. *109, Caithn.; several plants on low cliff, Ackergill Tower, Wick, E. C. WALLACE.

†339/3. AMBROSIA ARTEMISIIFOLIA L. 21, Middx.; abundant about Soya Foods Ltd. flour mill, Springwell Lock, 1945, B. WELCH and D. H. KENT, a few plants there 1946: rubbish tip, Hanwell, J. E. LOUSLEY, J. G. DONY, J. E. WOODHEAD, and D. H. KENT.

†339/4. AMBROSIA TRIFIDA L. 21, Middx.; frequent about Soya Foods Ltd. flour mill, Springwell Lock, 1945, D. H. KENT, a few plants there 1946.

†339/4b. AMBROSIA TRIFIDA L. var. INTEGRIFOLIA (Willd.) Torr. & Gray. 21, Middx.; canal bank near Springwell Lock, 1945, D. H. KENT, det. J. E. LOUSLEY.

353/2b. BIDENS TRIPARTITA L. var. INTEGRA Koch. 41, Glam.; damp ground by Morfa Pools, E. VACHELL.

†354/1. GALINSOGA PARVIFLORA Cav. 17, Surrey; has now appeared in quantity in some parts of the R.H.S. gardens, Wisley, J. S. L. Gilmour (1946: *J. Roy. Hort. Soc.*, *71*, lxvii). 55, Leics.; as a weed at Ansty Nurseries, 1945 and 1946, W. S. LACEY, comm. F. A. SOWTER.

†354/2b. GALINSOGA QUADRIRADIATA Ruiz et Pavon var. HISPIDA (DC.) Thell. 17, Surrey; Kew; 21, Middx.; City of London: Brentford; 1945, L. G. Payne (Lousley; 1946: 14). [Kew and Brentford plants not seen by J.E.L. and recorded as *G. quadriradiata.*—ED.] Abundant in abandoned front garden of 225 Euston Road, N.W.1, 1944, D. H. KENT: waste land, Great Chertsey Road, Chiswick, 1946, D. H. KENT.

†355/3. MADIA CAPITATA Nutt. H.12, Wexford; wheatfield on Ballinastraw side of S. Slaney ½ mile from Newtownbarry, August 1946, Miss E. BOOTH, det. N. Y. SANDWITH—"The owner sowed the field from seed bought two years ago from Hunters of Dublin. There was nothing else in the field of interest except cornflowers." First Irish record.

365/11. ACHILLEA PTARMICA L. 109, Caithn.; plants "galled" by the midge *Rhopalomyia ptarmicae* Vallot on an island on Loch Scye, Mrs J. V. PHELPS, det. J. F. G. CHAPPLE.

†368/10. ANTHEMIS WIEDEMANNIANA F. et M. 6, N. Som.; waste ground, Ashton Gate, Bristol, May 1939, C. I. SANDWITH. The speci-

mens fit descriptions and match those of J. W. White's 1911 gathering at Bristol which were named by Thellung and are now in the Druce Herbarium. Unfortunately, this gathering, which was distributed through the Exchange Club (*B.E.C. 1917 Rep.*, p. 229 (1918)), was a mixed one, including specimens of an *Anthemis* with larger leaves and heads, probably *A. Cota* or an allied species. Thus the sheets both in Mr White's herbarium at Bristol University and at Kew bear specimens of both species. The sheet in Herb. Druce also has both species on it, but there is a second label, not annotated and probably not seen by Thellung, beneath the plant of the larger species, whereas the label beneath the specimens of *A. Wiedemanniana* has Thellung's identification on it in his own handwriting, N. Y. SANDWITH.

†371/5. MATRICARIA DECIPIENS (Fisch. & Mey.) C. Koch. 54, N. Lincs.; Grimsby, 1937, Mrs SANDWITH and J. P. M. BRENAN, det. N. Y. SANDWITH and J. P. M. BRENAN (3927, 4048).

†378/12. ARTEMISIA TOURNEFORTIANA Rchb. 33, E. Glos.; Deerhurst, among *Bidens tripartita* at edge of horse-pond, Mrs J. FARQUHARSON, det. A. J. WILMOTT.

†378/21. ARTEMISIA VERLOTORUM Lam. 21, Middx.; Brentford and Hartington Road, Chiswick, 1945, B. WELCH, comm. D. H. KENT: between Brockley Hill and Elstree, Ealing Common, abundant by the Thames near Chertsey Bridge and rubbish tip, Hanwell, D. H. KENT: very abundant on waste land, Windmill Lane, Hanwell, B. WELCH and D. H. KENT.

380/1. PETASITES HYBRIDUS (L.) G., M. & S. emend. Fritsch. 70, Cumb.; the female plant, banks of the R. Irthing at Gilsland, Rev. G. A. K. HERVEY, comm. CARLISLE MUSEUM.

§†380/2. PETASITES ALBUS (L.) Gaertn. *60, W. Lancs.; plentifully in a copse at Wrea Green, J. A. WHELLAN.

†380/3. PETASITES FRAGRANS Presl. 60, W. Lancs.; roadside S. of Lancaster, 1942: roadside near Mowbreck Hall, Kirkham, J. A. WHELLAN.

†380/4. PETASITES JAPONICUS Maxim. 4, N. Devon; Berrynarbor, A. E. Mahood, previously reported as *P. albus* (Day and Brokenshire: 1945, 58).

†381/1. DORONICUM PARDALIANCHES L. 19, N. Essex; casual at St Osyth, 1945; 50, Denbigh; abundant in a wood near Pont-y-Trap, 1936: in a wood near Pwll Glas, 1936; 60, W. Lancs.; roadside W. of Longridge, 1942: roadside between Longridge and Chipping, 1942: in a copse near Great Plumpton, 1946, J. A. WHELLAN.

§†383/1. SENECIO SARRACENICUS L. *52, Anglesey; near Bodedera, 1945, E. G. Williams (1946: *N.W. Nat.*, *20*, 264).

§†383/7. SENECIO SQUALIDUS L. 40, Salop; frequent about R.A.F. Hospital, Cosford, E. C. WALLACE. *60, W. Lancs.; railway sidings at Preston, J. A. WHELLAN and H. E. BUNKER: railway bridge at Squires Gate, Blackpool, J. A. WHELLAN.

383/7×8. ×SENECIO LONDINENSIS Lousley. 3, S. Devon; waste ground adjoining Goodrington goods-yard, two plants, rather nearer *S. squalidus* than the London type, J. E. RAVEN, det. J. E. LOUSLEY. 21, Middx.; waste ground in Chelsea Square, S.W.3, R. GRAHAM.

383/7×10. ×SENECIO BAXTERII Druce. 14, E. Suss.; Eastbourne Railway Station, J. W. L. SLADEN, comm. J. E. LOUSLEY.

383/8. SENECIO VISCOSUS L. 2, E. Cornw.; railway track, Par, Aug. 4, 1946, R. C. L. BURGES. "One doubtfully recorded from West Cornwall, Charleston, 1921, Tresidder, extinct"—Thurston (1928: in *J. Roy. Instit. of Cornwall*, *76*, 167), J. E. LOUSLEY.

383/10e. SENECIO VULGARIS L. var. RADIATUS Koch. 51, Flint; Holywell (1725): Greenfield, 1944, H. O. WILLIAMS, comm. D. P. YOUNG. 57, Derbs. (T.1); Spondon, since 1941 (1696): Ford Lane, Breadsall, 1944 (1698): D. P. YOUNG.

†389/2. ECHINOPS RITRO L. 17, Surrey (8); waste ground, Sanderstead, 1938 to 1945, D. P. YOUNG (916).

396/1. CIRSIUM ERIOPHORUM (L.) Scop. 15, E. Kent; still at Postling Downs—the only locality known in the county recently, F. ROSE.

†399/1. SILYBUM MARIANUM (L.) Gaertn. 23, Oxon.; Garsington Rectory, 1944, Rev. P. J. J. FEAR, comm. and det. N. POLUNIN.

405/15. CENTAUREA CALCITRAPA L. 16, W. Kent; near Plough Inn, Northfleet, 1945, F. ROSE (not nearly so plentiful nowadays.—ED.), and apparently not to be found in 1947.

†405/31. CENTAUREA SOLSTITIALIS L. 3, S. Devon: Exmouth, J. J. STUART EDWARDS.

†405/39. CENTAUREA MOSCHATA L. 21, Middx.; rubbish tip, Hanwell, N. Y. SANDWITH and D. H. KENT, det. N. Y. SANDWITH.

416/3. CREPIS BIENNIS L. 35, Mon.; in plenty in two lanes near Raglan Castle, J. W. GOUGH and N. Y. SANDWITH.

§†419/8. HIERACIUM BRUNNEO-CROCEUM Pugsl. 21, Middx.; abundant on a grassy roadside, Syon Lane, Osterley, D. H. KENT. 39, Staffs.; Bass's maltings, Burton-on-Trent, 1937, J. F. G. Chapple and J. P. M. Brenan (3996). *89, E. Perth; in grass near church, Pitlochry, A. J. Wilmott—See *B.E.C. 1924 Rep.*, 579 (1925), for earlier record (as *H. aurantiacum* L.) for v.-c. 88.—Ed.

419/55. Hieracium lasiophyllum Koch. 70, Cumb.; shaly rocks on Barf Fell, J. A. Whellan, confirmed by H. W. Pugsley.

419/69. Hieracium argenteum Fr. 49, Caern.; rocks on Moel Hebog, 1942, J. A. Whellan and H. F. Dovaston, det. H. W. Pugsley.

419/74. Hieracium hypochaeroides Gibs. 50, Denb.; abundant on limestone rocks near World's End, Llangollen, 1935, J. A. Whellan; 64, M.W. Yorks.; on rocks above Malham Cove, J. A. Whellan—both confirmed by H. W. Pugsley.

419/80(2). Hieracium carneddorum Pugsl. 49, Caern.; on rocks on Moel Hebog, near Og of Owain Glyndwr, 1942, J. A. Whellan and H. F. Dovaston, det. H. W. Pugsley.

419/83. Hieracium pellucidum Laest. 64, M.W. Yorks.; stream bank by Thornton Force, Ingleton, 1942; 66, Durham; High Force Woods, J. A. Whellan—both det. H. W. Pugsley.

419/129. Hieracium anglorum (Ley) Pugsl. 49, Caern.; on a wall in Bangor, J. E. Raven and J. A. Whellan, confirmed by H. W. Pugsley.

419/145. Hieracium vulgatum (Fr.) Almq. 59, S. Lancs.; streamside near Catlow, Nelson, 1943, A. Turner and J. A. Whellan: 63, W. Yorks.; on a wall near Gargrave, 1943, J. A. Whellan—both confirmed by H. W. Pugsley.

419/249. Hieracium subcrocatum (Lint.) Zahn. 65, N.W. Yorks.; by Tees above Winch Bridge, R. M. Payne and J. A. Whellan, det. H. W. Pugsley.

419/256. Hieracium vagum Jord. 71, Man; banks of electric railway from South Cape to Minorca and on cliffs below—very abundant and appearing native but absence of previous records may mean it is introduced, J. A. Whellan, det. H. W. Pugsley.

421/3c. Hypochaeris glabra L. var. rostrata C. & G. 3, S. Devon; Goodrington ballast pit, Paignton, 1944, S. C. Patterson (Day and Brokenshire, 1945: 65 as var. *Balbisii* Lois.)

422/3b. Leontodon Leysseri (Wallr.) Beck. var. lasiolaenus (Bisch.) Druce. 33, E. Glos.; Ashchurch, almost as common as type, C. W. Bannister, comm W. R. Price.

†425/8. Lactuca macrophylla (Willd.) A. Gray. 4, N. Devon; roadside wall, Brayford, A. C. Larke, comm. et det. J. P. M. Brenan. 89, E. Perth; bank of river Tummel near Pitlochry, Mrs J. V. Phelps, det. J. F. G. Chapple.

†425/9. Lactuca tatarica L. 58, Ches.; gravel pits near Rossett, 1945, E. G. Williams (1946: *N.W. Nat.*, *20*, 263).

427/3c. Sonchus asper Hill. var. integrifolius Lej. 33, E. Glos.; Ashchurch, C. W. Bannister, comm. W. R. Price.

428/2. Tragopogon pratensis L. 39, Staffs.; Kinver, roadside near Kingswinford, flowers 1¾ inches in diameter, E. S. Edees (5499).

†435/6. Campanula persicifolia L. 17, Surrey; large patch in dense scrub on face of Gravelly Hill, Caterham, C. D. Pigott.

§440/1. Arbutus Unedo L. †41, Glam.; " naturalising itself on the limestone screes at Caswell," J. A. Webb (*Swansea Scientific Society's Proceedings*, *1*, 7, 1927).

453/1. Pyrola rotundifolia L. 15, E. Kent; near Brook, C. N. Pope: Waltham, and Chartham, both teste Miss D. Long: 1946, comm. F. Rose.

453/2. Pyrola media Sw. 90, Forfar; side of path through Scots Pine plantation, Kinnordy, Kirriemuir, Miss K. D. Whyte, comm. J. S. Whyte.

§456/1. Monotropa Hypopitys L. *68, Northumb. N.; Rothbury Forest, 1945, M. F. Adams (1946: *Vasc. Subst.*, 31, 1 and 9). Bracketted as doubtful for 67 in *Top. Bot.*, ed. ii, now refound in Northumberland after 170 years.

†457/9. Limonium Suworowii (Regel) O. Kuntze. 30, Beds.; rubbish dump, Sundon, J. G. Dony, det. E. Milne-Redhead.

§458/4. Statice maritima Mill. *41, Glam.; cliffs near Rhossili, 1945, growing with *S. pubescens* (Sm.) Dr. There seems to be some confusion in all Floras and Lists of Glamorgan plants regarding the occurrence of these two species in the county and it seems well that it should be definitely put on record that both species occur in the county, *S. pubescens* being apparently by far the commoner of the two. H. J. Riddelsdell (1907: *Flora of Glamorgan*, *Journ. Bot.*, *Suppl.*) describes only *Statice Armeria* L., from many localities, stating "All, I believe, in the form *A. pubescens* Link." A. H. Trow (1911: *Flora of Glamorgan*) describes only *Armeria maritima* L., as common "but for the fact that there are no records for the coast from Swansea to the mouth of the Kenfig River." Hyde and Wade (1934: *Welsh Flowering Plants*) describe (for Glamorgan) only *Statice maritima*. Vachell (*List of Glamorgan Plants*) gives *Statice pubescens* (Sm.) as locally common. *S. maritima* Mill. agg. All records probably refer to *S. pubescens*, *Journ. Bot.*, 1911, 90, see also *Journ. Bot., Suppl.*, 1907, 43. Up to last year I suppose no one had found the true *S. maritima* Mill. in the county and in gathering it I did not realise that it was a first definite record and therefore only have one specimen. E. VACHELL.

465/1. TRIENTALIS EUROPAEA L. 62, N.E. Yorks.; Troutsdale, H. B. WILLOUGHBY SMITH.

467/3. ANAGALLIS FOEMINA Mill. 21, Middx.; arable land near Heath Row, 1945, B. WELCH and D. H. KENT.

469/1. SAMOLUS VALERANDI L. 23, Oxon.; (5) marshy ground between Ducklington and Witney, 1938, T. R. DAVEY. (Not seen there since.)

†470/1. SYRINGA VULGARIS L. 41, Glam.; frequent as a hedgerow plant, often far from houses in Swansea area, J. A. WEBB, comm. E. VACHELL.

480/4c. GENTIANA AMARELLA L. var. PALLIDA (Pugsley) Wilmott. 88, M. Perth; Dull, near Loch Kinardochy, on old roadway, 1946, M. S. CAMPBELL, det. H. W. PUGSLEY.

480/4×8. G. AMARELLA L. × GERMANICA Willd. (×*G. Pamplinii* Druce). 30, Beds.; a single plant with corolla constricted, intermediate in colour, i.e. less "blue" than *germanica* and with segments less acute and smaller than in that species, chalk pit, Sundon, 1946, J. E. LOUSLEY, P. TAYLOR and J. E. WOODHEAD.

480/5. GENTIANA SEPTENTRIONALIS Druce. 105, W. Ross; Cnochan Rocks, on turfy limestone cliffs; 108, W. Suth.; pasture at Elphin; 109, Caithn.; grassy roadsides inland from Latheron and Lybster: heathy ground near Loch Winless, E. C. WALLACE.

§480/6. GENTIANA ANGLICA Pugsl. *16, W. Kent; Kemsing Downs—only three plants seen, D. McCLINTOCK and F. ROSE.

§480/7. GENTIANA ULIGINOSA Willd. *41, Glam.; Gower Peninsula, Aug. 1927, Miss V. PEEL, teste H. W. PUGSLEY, comm. J. E. LOUSLEY: Llanmadoc, Gower, 1934, A. L. STILL, comm. E. C. WALLACE.

†486/1. POLEMONIUM CAERULEUM L. 24, Bucks.; North End Common, 1943, D. H. KENT.

†497/3. SYMPHYTUM ORIENTALE L. 30, Beds.; well established in churchyard, Pertenhall, Miss G. H. DAY and J. G. DONY, det. E. MILNE-REDHEAD.

†497/4. Symphytum peregrinum Ledeb. 69, Westm.; roadside between Knock and Milburn, 1921, A. J. Wilmott (1136).

†498/1. Borago officinalis L. 71, Man; sparingly by the harbour at Laxey, J. A. Whellan.

†500/2. Anchusa officinalis L. 25, E. Suff.; Slaughton, E. C. E. Leadbitter.

†500/6. Anchusa hybrida Ten. 6, N. Som.; rubbish tip, Ashton Gate, Bristol, 1939-40, C. I. Sandwith—new to the Bristol adventive flora.

‡506/1. Myosotis scopioides L. em. Hill. 106, E. Ross; ditch with running water east of L. Ussie, by road, near Dingwall, 1931—add to *C.F.*, but recorded in *Top. Bot. Suppl.*, *I.*—A. J. Wilmott (3780).

506/10c. Myosotis versicolor Sm. var. dubia (Arrandeau) Drabble. 9, Dorset; roadside between Wareham and Bere Regis, A. H. G. Alston and N. D. Simpson (46009).

507/1. Lithospermum officinale L. 73, Kirkc.; bushy hedgebank, looking native, Sandyhills, Portowarren, E. C. Wallace.

507/3. Lithospermum arvense L. 41, Glam.; cornfield near Nottage, Porthcawl, Miss N. Thomas. First record as cornfield weed. Before recorded only as casual. Remove * from *List of Glamorgan Plants*, E. Vachell.

†511/2. Calystegia sylvestris (Willd.) Roem. & Schult. 13, W. Suss.: hedgebank in lane, Botolphs, far from houses; 17, Surrey; by the Mole at Burford Bridge, E. C. Wallace. 41, Glam.; garden weed at Cogan Pill, Penarth, in very great abundance, E. Vachell.

†512/1. Ipomoea purpurea (L.) Lam. 15, E. Kent; climbing over hedges at Cheriton, near Folkestone, 1944, D. H. Kent, det. A. B. Jackson. 21, Middx.: under wall of Soya Foods Ltd., Flour Mill, Springwell Lock, 1945, B. Welch, comm. D. H. Kent, also in 1946, N. Y. Sandwith, B. Welch, and D. H. Kent.

†512/2. Ipomoea hederacea Jacq. 21, Middx.; under the wall of Soya Foods Ltd., flour mill, Springwell Lock, 1945, J. E. Lousley and D. H. Kent, det. J. E. Lousley, and again in 1946, N. Y. Sandwith, B. Welch and D. H. Kent.

517/2d. Solanum nigrum L. var. atriplicifolium Dun. 18, S. Essex; very well marked on waste ground by Rainham Station, C. I. and N. Y. Sandwith.

†519/1. Nicandra physaloides Gaertn. 21, Middx.; a single large plant on a rubbish tip, Hanwell, D. H. Kent.

†527/1. Verbascum phlomoides L. 41, Glam.; weed in nursery garden, not originally planted according to statement made by nurseryman, Llandaff North, 1944, E. Vachell, det. A. E. Wade: weed, Roath, Cardiff, A. E. Wade.

§†527/4 Verbascum virgatum Stokes. *29, Cambs.; numerous plants on waste ground at back of a college, Cambridge, Dr J. N. Mills and J. P. M. Brenan.

527/6×3. Verbascum pulverulentum Vill. × Thapsus L. 28, W. Norf.; with parents in lane about two miles east of Hillington Station, 1945, J. E. Lousley, R. C. L. Burges, R. J. Libbey and E. L. Swann.

†528/1. Celsia cretica L. 39, Staffs.; Shobnall Maltings, Burton-on-Trent, D. P. Young (2212).

532/1×3. Linaria repens (L.) Mill. × vulgaris Mill. 46, Card.; lane from Llandoc to Wallog near Aberystwyth, R. B. Abell.

†532/28. Linaria pallida Tenore. 60, W. Lancs.; naturalised plentifully on church wall at Elswick, J. A. Whellan, confirmed by N. Y. Sandwith: 69, Westm.; on walls at Arnside, 1942-6, J. A. Whellan.

†537/1. Mimulus guttatus DC. 109, Caithn.; wholly brown flowered plants occurred with normal ones on shore at Lower Dounreay, E. C. Wallace.

†537/2. Mimulus moschatus Dougl. 39, Staffs.; Brindley Heath, by the side of a stream near the water works, 1945, E. S. Edees (4204).

§539/1. Limosella aquatica L. *52, Anglesey; Llyn Dinam, 1910, F. M. Dallman (1946: *N.W. Nat.*, *21*, 254). 55, Leics. (5); Groby Pool, 1944, D. P. Young (1788), not seen there previously.

543/12. Veronica humifusa Dickson. 108, W. Suth.; Ceahn Garbh, Foinaven, J. Sinclair.

†543/18c. Veronica persica Poir. var. Kochiana (Godr.). 33, E. Glos.; Ashchurch, common, C. W. Bannister, comm. W. R. Price.

543/19. Veronica agrestis L. 3, S. Devon; "cultivated land, Plymouth, Devon," July 1876, W. B. Waterfall (Herb. Kew.)—the existence of a Plymouth specimen is reported in view of the remarks in Martin and Fraser, *Fl. Devon*, p. 485, who regard *V. agrestis* as very local and rare throughout the county, N. Y. Sandwith.

†543/41. VERONICA FILIFORMIS Sm. 3, S. Devon.; Torquay, 1944, Rev. T. STEPHENSON (Day and Brokenshire, 1945, 65). 19, N. Essex; in stubble fields near Mile End, Colchester, 1944, J. A. WHELLAN. 21, Middx.; garden pest, 36 Gayton Road, Harrow, G. H. LOCKETT, det. N. POLUNIN. 41, Glam.; an increasing garden weed, etc., Cogan, etc., E. VACHELL: Mumbles Cemetery, and grass verges, Sketty Green, etc., J. A. WEBB. 62, N.E. Yorks.; Lastingham, probably garden escape, H. B. WILLOUGHBY SMITH. 71, Man; plentiful by the entrance to Glen Mona, 1946, J. A. WHELLAN. 88, M. Perth; waste ground, Perth, 1944, M. S. CAMPBELL and A. J. WILMOTT.

§545/2. EUPHRASIA BOREALIS Wettst. *35, Monmouth; with *E. Rostkoviana* Hayne in a hayfield in the valley below Llanthony Abbey, J. W. GOUGH and N. Y. SANDWITH, both confirmed by H. W. PUGSLEY.

§545/2d. EUPHRASIA BOREALIS Towns. ex Wettst. var. ZETLANDICA Pugsl. *109, Caithn.; Keiss and Dunnet Links, E. C. WALLACE.

§545/9. EUPHRASIA CURTA (Fr.) Wettst. *109, Caithn.; bank by Wick river, Altinarloch, E. C. WALLACE.

545/16. EUPHRASIA SCOTICA Wettst. 49, Caern.; Cwm Brwynog, Snowdon, 1942, J. A. WHELLAN and H. F. DOVASTON, confirmed by H. W. PUGSLEY.

§545/18. EUPHRASIA CONFUSA Pugsl. 64, M.W. Yorks.; pasture above Ingleton; 70, Cumb.; hillside near Scale Beck, Borrowdale; *50, Denb.; Moel Morfydd, 1942: base of Eglwyseg Cliffs, 1942; *60, W. Lancs.; Warton Crag, 1942; all J. A. WHELLAN, det. or confirmed by H. W. PUGSLEY [all as forma *albida*].

545/19c. EUPHRASIA ROSTKOVIANA Hayne var. OBSCURA Pugsl. 48, Mer.; roadside near Trawsfynydd, 1942, J. A. WHELLAN, det. H. W. PUGSLEY; 49, Caern.; foot of Moel Hebog, 1942, J. A. WHELLAN and H. F. DOVASTON, det. H. W. PUGSLEY.

545/19(3). EUPHRASIA RIVULARIS Pugsl. 70, Cumb.; roadside at top of Gatescarth Pass, J. A. WHELLAN, det. H. W. PUGSLEY.

545/19(3). EUPHRASIA RIVULARIS Pugsl. 49, Caern.; foot of Moel Hebog, 1942, J. A. WHELLAN and H. F. DOVASTON, det. H. W. PUGSLEY (as forma *compacta* Pugsl.).

545/19(4). EUPHRASIA ANGLICA Pugsl. 71, Man; roadside in Glen Roy, J. A. WHELLAN, confirmed by H. W. PUGSLEY.

548/1. RHINANTHUS MAJOR Ehrh. 90, Angus; near Carnoustie, U. K. DUNCAN.

548/5. RHINANTHUS STENOPHYLLUS Schur. 100, Clyde Isles; Ardmaleish, Bute, salt-marsh, 1928, A. E. ELLIS, det. A. J. WILMOTT.

548/6. RHINANTHUS SPADICEUS Wilmott. 96, Easterness; Glen Feshie, 1933, A. E. ELLIS, det. A. J. WILMOTT.

550/10e. OROBANCHE MINOR Sm. var. COMPOSITARUM Pugsl. 17, Surrey; on *Leontodon hispidus* in rough chalk pasture between Headley and Epsom, N. Y. SANDWITH, confirmed by H. W. PUGSLEY.

†551/2. LATHRAEA CLANDESTINA L. 33, E. Glos.; in stone duct in bank in town, Cheltenham, in quantity, nettles, willow and small elm grow near, W. B. HORNBY, comm. W. R. PRICE.

552/5. UTRICULARIA MINOR L. 41, Glam.!; marsh near Cefn Bryn, Gower, in abundance, 1945, E. VACHELL.

558/1. MENTHA ROTUNDIFOLIA L. 15, E. Kent; 3 miles W. of Chilham, F. ROSE.

558/2. MENTHA ALOPECUROIDES Hull. 15, E. Kent; Hothfield Heath: S.W. of Lenham, F. ROSE. 109, Caithn.; Aikerness, Wick, not uncommon near crofts in the district, E. C. WALLACE.

558/3. MENTHA LONGIFOLIA (L.) Huds. 15, E. Kent; south of Lenham, F. ROSE—abnormal in having included stamens, which is not unusual for *longifolia*: I can see no definite evidence of hybridity with *rotundifolia* in the spikes, R. GRAHAM. 21, Middx.; waste ground by the Welsh Harp reservoir, R. GRAHAM.

558/6. MENTHA PIPERITA L. 109, Caithn.; shore of St John's Loch, Dunnet, E. C. WALLACE.

§558/12. ×MENTHA RUBRA Huds. 15, E. Kent; north of Willesbro' Lees; 16, W. Kent; Morant's Court Hill, F. ROSE. 21, Middx.; in a ditch by Northwick Park golf course: by the Brent Reservoir, R. GRAHAM. *109, Caithn.; ditch in lane from Wick to Noss, far from houses, E. C. WALLACE.

†558/15. MENTHA REQUIENI Benth. 16, W. Kent; woodland ride N. of Penshurst, 1945, F. ROSE.

§558/13. MENTHA ARVENSIS L. ‡71, Man; (Paton, C. I.; 1933: *N.W. Nat. Suppl.*, 40).

566/1. SALVIA PRATENSIS L. 22, Berks.; meadow near Arlington, 4 m. north of Newbury, H. WHEELER, comm. A. J. WILMOTT.

†566/6. SALVIA SCLAREA L. 23, Oxon; Quarries Hill, Milton-under-Wychwood (on base of stone wall by roadside), 1943, HENRY MORSE, comm. Miss HODGMAN, det. N. POLUNIN.

573/1. PRUNELLA VULGARIS L. 24, Bucks.; several white-flowered plants found on the chalk escarpment at Wendover, J. M. LAMBERT.

§573/2. PRUNELLA LACINIATA L. *16, W. Kent; Birling Downs, very scarce in Kent, F. ROSE. *34, W. Glos.; limestone down south of the Camp, Tytherington, in some quantity, looking perfectly native with thyme on a stony piece of down where the turf is very short, Dr F. B. A. WELCH, comm. W. R. PRICE.

§577/4. ×STACHYS AMBIGUA Sm. ‡109, Caithn.; abundant in willow thicket, Forse, Lybster, and frequent near crofts between there and Wick, but *S. sylvatica* not seen, E. C. WALLACE (see *Top. Bot.*, *ed. 2*, for earlier record).

590/1. ILLECEBRUM VERTICILLATUM L. 11, S. Hants.; Burnley, E. C. E. LEADBITTER.

§600/4. CHENOPODIUM HYBRIDUM L. *39, Staffs.; Sudley and Miles Green, G. J. V. BEMROSE, comm. E. S. EDEES.

600/6. CHENOPODIUM MURALE L. 19, N. Essex; kitchen garden weed, Layer Marney Hall, 1945, M. S. CAMPBELL.

600/13. CHENOPODIUM GLAUCUM L. 16, W. Kent; Kemsing Station Yard, D. McCLINTOCK and F. ROSE.

†600/36. CHENOPODIUM CAPITATUM (L.) Asch. 26, W. Suff.; weed on garden path, Mundford, Brandon Heath, Sept. 1946, Dr VIOLET TEWSON, per Hon. Mrs ADEANE, comm. E. VACHELL.

†606/9. ATRIPLEX NITENS Schkuhr. 30, Beds.; Aspham: Silsoe, J. G. DONY, det. A. J. WILMOTT.

612/1. SUAEDA FRUTICOSA Forsk. 15, [E. Sussex]; on the shingly border of a saltwater pond, Midrips (W. of Dungeness), plentiful: 1946, J. H. LAVENDER and F. ROSE—given for 15 in *C.F.* (source unknown); not in *Top. Bot.* or *Suppls.*, nor in Hanbury and Marshall *Fl. Kent.*

†613/3. SALSOLA PESTIFERA A. Nels. 30, Beds.; waste ground, Luton, 1944, E. MILNE-REDHEAD and J. G. DONY.

615/5b. POLYGONUM AMPHIBIUM L. var. TERRESTRE Leers. 33, E. Glos.; Ashchurch, common, C. W. BANNISTER, comm. W. R. PRICE.

†616/1. FAGOPYRUM SAGITTATUM Gilib. 3. S. Devon; Yettington, near Exmouth, J. J. STUART EDWARDS.

618/6×7b. RUMEX OBTUSIFOLIUS L. × SANGUINEUS L. var. VIRIDIS Sibth. 40, Salop; laneside, Boscobel, E. C. WALLACE.

618/6a×11a. Rumex obtusifolius L. subsp. agrestis (Fries) Danser ×pulcher L. subsp. eu-pulcher Rech. f. 3, S. Devon.; one large plant among concrete blocks on beach, Branscombe Mouth, J. P. M. Brenan (7304), det. J. E. Lousley.

618/11a×7b. Rumex pulcher L. subsp. eu-pulcher Rech. f. × sanguineus L. var. viridis Sibth. 29, Cambs.; with parent species in rough grassy ground, The Backs, Cambridge, Dr J. N. Mills and J. P. M. Brenan (7375), confirmed by J. E. Lousley.

618/13. Rumex maritimus L. 16, W. Kent; Egypt Bay, High Halstow, before 1939, J. Braybrooke Marshall; abundant in 1946, with hybrids with *R. conglomeratus*, F. Rose. 39, Staffs.; Enville, abundant on the caked mud of a dried-up pool south of Highgate Common, E. S. Edees (5322).

†618/20. Rumex Patientia L. 21, Middx.; Isle of Dogs, 1945, J. A. Whellan (Lousley; 1946, 15).

627/1. Thesium humifusum DC. 15, E. Kent; on downs S.W. of Bishopsbourne, probably the same station as that of the Rev. E. Ellman of about 40 years ago, and that of Mrs Assheton (*B.E.C. 1917 Rep.*, 126); these two are the only previous records for Kent, F. Rose. 33, E. Glos.; near Withington, Miss L. Abell.

628/5. Euphorbia platyphyllos L. 17, Surrey; cornfield, Holmwood, 1945, L. G. Payne (Lousley; 1946: 14).

§†628/9. Euphorbia virgata W. & K. *21, Middx.; abundant on a bank by the canal at North Hyde near Southall, 1945, D. H. Kent, det. A. J. Wilmott. *33, E. Glos.; lane between Northway and Bredon's Hardwicke (in Glos.), a large colony, C. W. Bannister, comm. W. R. Price. *59, S. Lancs.; lane leading from the railway station to the River Alt, Hightown, near Formby, 1946, N. F. Ellison (1946: *N.W. Nat.*, *21*, 256).

§628/11. Euphorbia Cyparissias L. †17, Surrey (8); Selsdon Wood, on chalk and very possibly native, 1939, D. P. Young (940). ‡24, Bucks.; chalk slope near Loudwater, 1946, R. Graham and N. Y. Sandwith, looking native: Druce, *Fl. Bucks*, p. 296, gives only one locality, at Tyler's Green in the Thames District.

§632/2. Mercurialis annua L. *38, Warw.; bombed site, Birmingham, R. C. L. Burges.

†636/1. Ficus carica L. 17, Surrey (8); railway banks, Mitcham: Norwood; 1940, D. P. Young.

†639/1. Helxine Soleirolii Req. 41, Glam.; increasing greatly on walls, paths, lawns, etc., near Llanday, E. Vachell: one of the most abundant wayside escapes in Oystermouth and Brynon parishes, J. A. Webb.

643/1b. Alnus glutinosa (L.) Gaertn. var. laciniata Willd. 16, W. Kent; one tree on Tunbridge Wells Common, 1938, J. P. M. Brenan (5216).

650/1. Salix pentandra L. 100, Clyde Isles; Rhutlan, Bute, 1928, A. E. Ellis, det. A. J. Wilmott, 1938.

651/3b. Populus nigra L. var. betulifolia Torr. 42, Brecon; Crickhowell and Brecon, possibly native, E. Milne-Redhead.

†651/11. Populus trichocarpa Torr. & Gray ex Hook. 15, E. Kent; sand-pit by R. Medway at Aylesford, 1935, J. P. M. Brenan (1225), det. P. G. Beak—this record replaces the erroneous one of *P. Tacamahacca* Mill. in *B.E.C. 1935 Rep.*, 41 (1936). 35, Monmouth; streamside between Tintern and Trelleck, 1936, Mrs Sandwith, N. Y. Sandwith and J. P. M. Brenan (3030), confirmed by P. G. Beak.

662/1. Neottia Nidus-avis (L.) Rich. 22, Berks.; Wolverley Wood, Kintbury, H. Wheeler, comm. A. J. Wilmott.

§663/1. Listera ovata (L.) R. Br. *71, Man; given by Paton in his list of Manks plants (1933: *N.W. Nat., Suppl.*, 48). *Top. Bot.* and *Suppls.* give all except 71 and 112; so delete 73 from exceptions in *C.F.*, which should have read " throughout Britain save 71, 112." Dr H. Milne-Redhead has seen *L. ovata* in v.-c. 73 recently.

665/1. Goodyera repens (L.) R. Br. 70, Cumb.; abundant under pines in Ashbridge Plantation, Stoneraise, near Carlisle (wood felled in 1946), E. Blezard, comm. Carlisle Museum. 107, E. Suth.; wood at Invershin, Miss C. W. Muirhead, comm. Carlisle Museum.

668/1. Epipactis palustris (L.) Crantz. 16, W. Kent; about 16 plants, from two to six inches high, in a disused chalkpit near Greenhithe: the ground was quite dry at the time of flowering, and a fine series of hybrids of *Orchis praetermissa* × *O. Fuchsii* accompanied the above species, together with some *Ophioglossum* eight inches high, F. Rose.

669/1. Orchis purpurea Huds. 17, Surrey; Coulsdon, a fine specimen in natural grass beside a drive; first seen two years previously, A. J. Wilmott.

669/5. Orchis Morio L. 20, Herts.; Cassiobury Park, near Watford, 1944, D. H. Kent.

§669/9. Orchis purpurella T. & T. A. Steph. *39, Staffs.; Moss Carr, R. H. Hall, confirmed by Dr T. Stephenson. *59, S. Lancs.; in railway cutting, Cop Lane station, Penwortham, Preston, 1942, E. Bunker, det. Dr T. Stephenson. 69, Westm.; near Windermere: Tebay (with some var. *pulchella* (Dr.)): Caiston Beck, 1945; *97, W-ness.; Ft. William; 98, M. Argyll; Ganavan and Lochan Dubh, near Oban, 1946, D. P. Young, all confirmed by A. J. Wilmott.

669/10. Orchis ericetorum (Linton) E. S. Marshall. 39, Staffs.; Moss Carr, R. H. Hall.

669/10×9. Orchis ericetorum (Linton) E. S. Marshall × purpurella T. & T. A. Steph. = ×O. formosa Steph. 39, Staffs.; Moss Carr, R. H. Hall, confirmed by Dr T. Stephenson.

669/11×8. Orchis praetermissa Druce × Fuchsii Druce. 21, Middx.; abundant near Harefield, with both parents, 1944, D. H. Kent, confirmed by H. W. Pugsley.

§672/3. Ophrys apifera Huds. 55, Leicester; Breedon Cloud, R. H. Hall. *60, W. Lancs.; sparingly in at least three places on the dunes at St Annes—first seen by J. B. Poole in 1943, then in 1946 by Mrs S. P. Rowlands in a different place where I subsequently saw it, and later seen by me in a third place, J. A. Whellan.

673/1. Herminium Monorchis (L.) R. Br. in Ait. 15, E. Kent; near East Malling, 1943, O. V. Polunin.

674(1)/1. Gymnadenia conopsea (L.) R. Br. 21, Middx.; a single plant, Garett Wood, Springwell, D. H. Kent.

676/2. Iris foetidissima L. 22, Berks.; Radley Wood, A. F. Twist.

684/1. Narcissus Pseudo-Narcissus L. 35, Monm.; in wood, eastern side of New Hill, near Grosmont, at an altitude of approximately 1000 feet, R. Lewis and E. W. Jones.

694/1. Convallaria majalis L. †41, Glam.; wood on limestone ridge near Porthcawl, looking native but originally planted, Miss M. Thomas; probably extinct as a native in the county, E. Vachell.

702/3. Allium Scorodoprasum L. 69, Westm.; (4) on the three main Islands in Ullswater, A. J. Farmer.

702/4b. Allium vineale L. var. bulbiferum Syme. 52, Angl.; Newborough, 1941, D. P. Young (1402).

702/4c. Allium vineale L. var. compactum (Thuill.). 52, Angl.; Newborough, 1941, D. P. Young (1403). 60, W. Lancs.; several places on the dunes at Ansdell, J. A. Whellan.

702/9. ALLIUM OLERACEUM L. 58, Ches.; Denhall Wirral (1947: N.W. *Nat.*, *21*, 105). 70, Cumb.; edge of Wedholme Flow, Lessonhall, near Wigton, Mrs J. S. MUIRHEAD, comm. CARLISLE MUSEUM.

706/3b. SCILLA NON-SCRIPTA H. & L. var. BRACTEATA Druce. 5, S. Somerset; Ilminster (1946: *J. Roy. Hort. Soc.*, *71*, xlix).

707/1. ORNITHOGALUM PYRENAICUM L. †17, Surrey; Langshott Wood, Horley, B. M. C. MORGAN.

§714/1. NARTHECIUM OSSIFRAGUM (L.) Huds. ‡61, S.E. Yorks.; Houghton Woods, 1888, J. F. Robinson, 1902: *Flora E. Riding*, p. 187.

§718/4×5. ×JUNCUS DIFFUSUS Hoppe. ‡13, W. Suss.; Northchapel, 1925, R. J. BURDON, comm. E. C. WALLACE (and see *Top. Bot.*, ed. 2, 430). ‡15, E. Kent; marsh ditch, Ham, near Sandwich, 1936, E. C. WALLACE (and see Hanb. & Marshall, 1899, *Fl. Kent*, 351). *39, Staffs.; Great Barr, growing with both parents, E. S. EDEES. *66, Durham; Butterby near Durham, D. H. VALENTINE (1946: *Vasc. Subst.*, *31*, 29).

718/5. JUNCUS INFLEXUS L. 76, Renfrew; Braidbar Quarry, Giffnock, 1945, a scarce plant in Clydesdale, R. MACKECHNIE.

718/6. JUNCUS BALTICUS Willd. 60, W. Lancs.; still abundant, 1946, in one damp spot in the dunes at Ansdell, where it was found by Rev. E. S. Marshall in 1914 (*Lancs. and Ches. Nat.*, 1925), J. A. WHELLAN.

718/13. JUNCUS SQUARROSUS L. 24, [Beds.]; New Wavendon Heath, J. G. DONY.

§718/16. JUNCUS TENUIS Willd. †21, Middx.; Hounslow Heath, 1945, B. WELCH and D. H. KENT. †39, Staffs.; Bobbington, a single clump on the grass verge of a war-time airfield, E. S. EDEES (5358). †47, Mont.; in a cart rut, Llanwrig, Llanidloes, 1945, Mrs G. FOGGITT. *†105, W. Ross; Strome Ferry, 1945, R. MACKECHNIE.

†718/26. JUNCUS PALLIDUS R. Br. 21, Middx.; gravel pit, E. Bedfont, 1945, Mrs H. R. Davies (Lousley; 1946: 13).

719/3×2. LUZULA FORSTERI (Sm.) DC. × PILOSA (L.) Willd. (×L. BORRERI Bromf.). 16, W. Kent; with parent species on a shady roadside bank at Speldhurst, 1937, J. P. M. BRENAN (3216).

722/4. SPARGANIUM ANGUSTIFOLIUM Michx. 109, Caithn.; Loch of Killimster, E. C. WALLACE.

722/5. SPARGANIUM MINIMUM Fries. 41, Glam.; in canal at Swansea, abundant, 1937, Miss M. THOMAS, a confirmation of old record—remove "(?)" from *Glamorgan Plant List*, E. VACHELL.

723/2. Arum maculatum L. 29, Cambs.; a form with rich reddish-purple spathe, J. E. Lousley and John Raven. Similar plants of this most striking variation were later seen at 16, W. Kent; Darenth Churchyard, and 17, Surrey; lane near Banstead, and it seems interesting that three such plants should be seen in widely separated localities in the same year, J. E. Lousley.

724/1. Acorus Calamus L. 40, Salop; in disused canal, Tong, E. C. Wallace.

§727/3. Lemna trisulca L. *76, Renfrew; Braidbar Quarry, Giffnock, 1945, R. Mackechnie—Lee (1933: *Fl. Clyde Area*) says "frequent," but I find it very rare. *109, Caithn.; pond at Upper Gillock, Wick, E. C. Wallace.

729/2. Alisma lanceolatum With. 15, E. Kent; east of Stile Bridge, in R. Beult south of Linton, 1945, F. Rose.

730/1. Baldellia Ranunculoides (L.) Parl. 16, W. Kent; still on Chislehurst Common, the only station known to me in v.-c. 16, F. Rose. 23, Oxon; (5) on marshy ground between Ducklington and Witney, one plant in 1941, not seen since, T. R. Davey. 30, Beds.; Tempsford, Miss I. J. Allison, comm. J. G. Dony.

737/4. Potamogeton coloratus Hornem. 15, E. Kent: Wingham Fen: Hacklinge: Worth Minnis, F. Rose, det. Dandy and Taylor.

737/5. Potamogeton alpinus Balb. 109, Caithn.; Loch of Yarrows, E. C. Wallace, confirmed by Dandy and Taylor.

737/9×13. ×Potamogeton Zizii Koch ex Roth. 90, Angus; Long Loch, Lundie, near Dundee, J. Sinclair and U. K. Duncan, comm. U. K. Duncan, det. G. Taylor.

§737/15. Potamogeton praelongus Wulf. ‡109, Caithn.; Loch of Yarrows, Loch Watten, E. C. Wallace, confirmed by Dandy and Taylor (see *Top. Bot.*, ed. 2, for previous record).

737/16. Potamogeton perfoliatus L. 109, Caithn.; Loch of Yarrows, Loch Watten, mill dam at Forse, E. C. Wallace.

737/23. Potamogeton Berchtoldii Fieb. 109, Caithn.; Loch of Yarrows, Loch Watten, mill dam, Newlands of Forse; pond at Upper Gillock, Wick, E. C. Wallace, det. Dandy and Taylor.

737/25. Potamogeton pusillus L. 15, E. Kent; ditches W. of Sandwich, F. Rose, det. Dandy and Taylor.

737/28. Potamogeton pectinatus L. 71, Man; abundant in a pool at Castletown, J. A. Whellan.

737/30. Potamogeton filiformis Pers. 109, Caithn.; mill dam, Newlands of Forse, E. C. Wallace, det. Dandy and Taylor.

§738/1. Ruppia spiralis L. ex Dumort. *60, W. Lancs.; so abundant in the artificial lake at Fairhaven that it was carted away by lorry, and a month or so later it filled one end of the lake again, J. A. Whellan and H. E. Bunker (as *R. maritima* L.).

§739/3. Zannichellia gibberosa Rchb. *6, N. Som.; in a water bunker on the golf links, Berrow dunes, 1945, N. Y. Sandwith (1946: *N.W. Nat.*, *20*, 275).

§740/1(2). Zostera Hornemanniana Tutin. *Jersey, St Catherine's Bay, 1887, Richards (Herb Piquet). *10, Wight; Norton, Freshwater, 1868, King's Quay, 1869, F. Stratton. *13, W. Suss.; Chichester Harbour, 1875, H. E. Fox: Prinstead, 1933, P. M. Hall [No. 998]. *66, Durham; Tees estuary, Seaton Carew, 1869, M. A. Lawson. *69b, N. Lancs.; coast of Fulney and Roa Islands, 1913, W. H. Pearsall. *105, W. Ross.; Loch Carron, 1893, H. E. Fox. *(?H.9, 15, 16 or 17); Galway Bay, 1875, G. C. Druce. New to Ireland.

§744/1. Cyperus longus L. *49, Caern.; ditch near Conway estuary, E. Price Evans, comm. A. Wilson.

§745/2. Heleocharis uniglumis (Link.) Schultes. *Jersey; Samaus Miles, 1851, J. Piquet: *2, E. Cornw.; Pill, Saltash, 1886, J. Vaughan; both det. J. F. G. Chapple (in Herb. Druce). 15, E. Kent; locally dominant in Hacklinge " Fen," F. Rose. *66, Durham; water meadows between Billingham and Norton, 1945, K. B. Blackburn (1945: *Fasc. Subst.*, *30*, 47). 96, Easterness; salt marsh, Beauly, 1943, U. K. Duncan, confirmed by J. P. M. Brenan.

745/2b. Heleocharis uniglumis (Link) Schultes var. Watsoni (Bab.). 100, Clyde Isles: Ardmaleish, Bute, salt marsh, 1928, A. E. Ellis, det. J. F. G. Chapple, 1938.

745/4. Heleocharis acicularis (L.) R. Br. 17, Surrey; Pen Ponds, Richmond Park, 1945, Mrs B. Welch (Lousley; 1946: 13).

746/7. Scirpus caespitosus L. 6, N. Som.; Beacon Batch, Blackdown, Mendips, 1938, A. E. Ellis; " instead of a single, terminal spike there are several, and the male and female organs have been replaced by scales (glumes). This gives the plant a different appearance, but the glumes are typical in shape and size, and the base of the plant is normal with its bladeless sheaths and tufted habit " (E. Nelmes, 1947). [23, Oxon; Headington Wick Bog, 18th June 1860, H. Boswell.] While recently going through the British Herbarium of the University Department of Botany, Oxford, I came across a sheet from Henry Boswell's Herbarium labelled " *Scirpus pauciflorus*, Headington

Wick Bog, near Oxford, 18th June 1860, H. Boswell." The sheet consisted of five good fruiting specimens of *S. pauciflorus* Lightfoot (which is well known from and still grows at Headington Wick) and six specimens of *Scirpus caespitosus* L. which has not been recorded, or even doubtfully recorded, for Oxon (v.-c. 23). It should be stated that although all the specimens of the two species on Boswell's sheet appear to have been " mounted " (gummed down) at the same time, the specimens of the two species are not intermixed but separate with no clear line of division where they meet in the centre of the sheet. Headington Wick bog is basic, the basic content being obtained from the wash from the calcareous ground surrounding it and, although not impossible, it is highly improbable that such a strong calcifuge as *S. caespitosus* would grow there. Furthermore, it is a piece of ground which has been visited and worked over by generations of Oxford botanists and, being comparatively small in area, it is hardly conceivable that such a plant would have escaped notice. I think the probable explanation is that Boswell got his plants mixed in mounting, and until *S. caespitosus* is refound the record of this species for v.-c. 23 should be treated as an error. Boswell's plant is the var. b. *germanicus* (Palla) Asch. et Graeb. of the *British Pl. List*, ed. 2, which I, in common with Scandinavian botanists, prefer to treat as a species—*S. germanicus* (Palla) W. Christiansen.—J. F. G. Chapple.

746/8. Scirpus pauciflorus Lightf. 54, N. Lincs.; between the limestone ridge and the valley of the Ancholme, about 15 miles N. of Lincoln, E. Joan Collins, det. A. J. Wilmott.

746/11. Scirpus setaceus L. 17, Surrey; bank of pond on Burgh Heath, E. C. Wallace.

§746/12. Scirpus cernuus Vahl. ‡"S"—see Marquand, *Fl. Guernsey*, and Lester-Garland, *Fl. Jersey* (specimens from both Guernsey and Jersey in Herb. Druce), J. F. G. Chapple. *24, Bucks; Lane End, 1904, G. C. Druce (sp. in Herb. Druce). The specimen mounted on a sheet labelled *S. setaceus* L., among other specimens of that species, is clearly labelled (in Druce's hand) as " Lane End, 1904," and, is presumably the plant on which the record for *S. setaceus* is based in *Fl. Bucks*, 362, 1926. This appears to be the furthest inland that *S. cernuus*—an atlantic and predominantly coastal plant—has been found in Britain (excluding Eire) and it should be sought for again at Lane End to ascertain its association, J. F. G. Chapple.

746/14. Scirpus compressus (L.) Pers. 15, E. Kent; Brook, in a small fen, 1946, F. Rose—only two other localities known now in Kent.

§748/2. Rhynchospora alba (L.) Vahl. 73, Kirkc.; not given in *C.F.* for this county. Dr H. Milne-Redhead vouches for its occurrence, and reference to *Top. Bot.* shows that the entry in *C.F.* of 72, 77, should be corrected to 72-77.

750/1. Cladium Mariscus (L.) R. Br. 15, E. Kent; refound at Ham Ponds, the only native locality in S.E. England, in abundance and in fine fruit, with *Salix repens* and *Thelypteris palustris*, after having been " lost " for many years through the approaches having become overgrown, F. Rose.

§753/4. Carex vesicaria L. *6, N. Som.; in moor ditches, Axbridge, 1877, W. B. Waterfall, several fine fruiting specimens in his herbarium (now at Kew)—confirmed by E. Nelmes, comm. N. Y. Sandwith—[rediscovered in small quantity along two reens, May 31st, 1947, C.I. and N.Y.S.] 17, Surrey; Fishpond Wood below Wimbledon Common, 1945, Mrs B. Welch (Lousley; 1946: 13).

§753/8. Carex lasiocarpa Ehrh. *111, Orkney; marsh at Bain, north of Sandwick South Public School, 1939, J. Sinclair.

§753/11. Carex sylvatica Huds. *78, Peebles; Glen, Innerleithen, 1945, J. C. R. McCubbin, comm. R. Mackechnie.

753/12. Carex strigosa Huds. 40, Salop; wet wood, foot of Ercall Hill, Wellington, E. C. Wallace.

§753/14. Carex capillaris L. *49, Caern.; Cowlyd district, E. Price Evans, comm. A. Wilson.

§753/15. Carex binervis Sm. *61, S.E. Yorks.; Breighton and Allerthorpe Commons, J. M. Taylor (see 1946; *Nat.*, 28).

§753/18. Carex punctata Gaud. 71, Man; in wet rocks by the beach at Onchan: also less plentifully in two localities near Laxey, J. A. Whellan, confirmed by E. Nelmes. *H.16, Galway West; Dogs Bay Roundstone, 1925, T. J. Foggitt, det. E. Nelmes, comm. C. M. Rob.

753/20. Carex flava L. 64, N.W. Yorks.; Tarn Moss, Malham, G. A. Shaw, det. E. Nelmes (see Shaw (1946; *Nat.*, 138); *B.E.C. 1945 Rep.*, 96 (1947)).

753/20(2). Carex tumidicarpa Anderss. in Herb. Druce, det. E. Nelmes, 1946, from Jersey, Guernsey, 1, 3, 6, 7, 9, 10, 12, 14, 16, 17, 20, 22, 24, 28, 29, 31, 32, 35, 39, 40, 41, 42, 43, 52, 57, 59, 60, 62, 64, 69, 70, 74, 85, 88, 90, 92, 94, 96, 97, 98, 100, 104, 105, 106, 108, 109, 110, 111, 112, H.1, H.9, H.15.

§753/21. Carex lepidocarpa Tausch in Herb. Druce, det. E. Nelmes, 1946. S, Jersey; Quenvais, 1851, J. Piquet; *20, Herts.; Ashwell Common, 1846, W. Ansell; 32, Northants.; Withering and Foxhall, 1878, G. C. Druce; Hornstock, 1913, G. C. Druce; 62, N.E. Yorks.; Bickdale, Helmsley, 1872, R. Moreton Middleton (earlier than record in *B.E.C. 1931 Rep.*, 165 (1932)); *67, Northumb.; Bavington, 1879, H. E. Fox; *95, Elgin; Findhorn, 1888, G. C. Druce; *97, Westerness; Aonach Mor (no date), G. C. Druce; *106, E. Ross; Rosehaugh, 1882, Corrie Li, 1902, Strathpeffer, 1925, G. C. Druce; 109, Caithness; Loch Watten, 1907, G. C. Druce; *110, O. Hebr.; Loch Langavar, 1928, G. C. Druce; 111, Orkney; Hoy, 1920, G. C. Druce; Glims Moss, Bressay, 1922, H. H. Johnston [No. 2183]. H.9, Clare; Blackhead, 1930, G. C. Druce; H.15, S.E. Galw.; Rossmore, Lough Derg, 1907, G. C. Druce.

69, Westm.; High Cup Nick, 1946; 88, M. Perth; north shore of Loch Tummel, 1945, J. A. Whellan, confirmed by E. Nelmes.

§753/22. Carex serotina Mérat. 4, N. Devon; Braunton Burrows, 1917, C. P. Hurst (earlier than record in *B.E.C. 1932 Rep.*, 548 (1933)). *23, Oxon.; S. end of Port Meadow, B.E.C. Oxford Excursion; *68, Cheviot; Ross Links, 1886, H. E. Fox—in Herb. Druce, det. E. Nelmes, comm. J. F. G. Chapple.

753/23. Carex extensa L. 15, E. Kent; abundant in dune slacks at Shellness, Sandwich, F. Rose—the only recent Kent locality.

753/25. Carex digitata L. 69b, N. Lancs.; limestone rocks in Roudsea Wood, J. A. Whellan, confirmed by E. Nelmes.

§753/29. Carex ericetorum Poll. 63, S.W. Yorks.; sparingly on old grass-covered spoil heaps, Jackdaw Crag Quarry, near Tadcaster, G. A. Shaw, confirmed by W. A. Sledge. *69, Westm.; frequent in turf beside *Helianthemum canum*, Scout Scar near Kendal, May 1944, T. G. Tutin.

753/32b. Carex pilulifera L. var. longibracteata Lange. 11, S. Hants.; Brockenhurst, N. D. Simpson (46002).

753/58b. Carex canescens L. var. fallax F. Kurtz. 90, Angus; Burn of Fialzioch, Clova, 1946, U. K. Duncan.

§753/59. Carex Otrubae Podp. *42, Brecon; Penderyn, E. Milne-Redhead and H. K. Airy Shaw.

§753/59(2). Carex vulpina L. *10, Wight; Eaton Marsh, Freshwater, 1899, C. E. Palmer in Herb. Druce. *22, Berks.; Coleshill, 1891, G. C. Druce in Herb. Druce. *23, Oxon; wet oak wood on Otmoor, J. P. M. Brenan, J. F. G. Chapple and R. A. Graham.

753/60. Carex spicata Huds. 52, Anglesey; roadside near Holyhead, 1940, J. A. Whellan; 59, S. Lancs.; railway bank near Penwortham, H. E. Bunker; 60, W. Lancs.; canal bank near Garstang, 1942, J. A. Whellan—all confirmed by E. Nelmes.

§753/61. Carex Pairaei F. Schultz. 19, N. Essex; Castle Hedingham, 1904, G. C. Druce (earlier record than that given in *B.E.C. 1943-44*

Rep., 769 (1946)); *27, E. Norf.; Horsford, 1899, W. Wright Mason; 45, Pemb.; Newport, 1919, G. C. Druce (earlier record than those given in *Journ. Bot.*, 238, 1932, or *B.E.C. 1937 Rep.*, 515, 1938); Pitlochry, G. C. Druce; *48, Mer.; Towyn, 1931, C. E. Britton [No. 3820] (see *B.E.C. 1931 Rep.*, 844 (1932); 88, M.-Perth; near Kinnaird Castle, near Ballinluig, 1912, G. C. Druce.

*35, Monm.; dry hedgebank above Abergavenny, on ascent of the "Sugar Loaf," J. W. Gough and N. Y. Sandwith, confirmed by E. Nelmes. *40, Salop; sandy hedgebank, Neachley near Tong, E. C. Wallace. 48, Merioneth; near Barmouth, 1940; 51, Flint; roadside near Northop, 1940, J. A. Whellan, det. E. Nelmes. *72, Dumfries; Thornhill, towards Morton Castle, D. Cunningham, comm. E. C. Wallace.

§753/61(2). Carex polyphylla Kar. et Kir. To vice-county records in *B.E.C. 1945 Rep.*, 102, add 10 (*B.E.C. 1933 Rep.*, 564). Additional records from Herb. Druce, det. E. Nelmes—*S, Sark, 1906, G. C. Druce; 11, S. Hants.; Alton, 1885, J. Vaughan; *13, W. Suss.; Chichester, 1917, G. C. Druce; 17, Surrey; Thames Ditton, 1866, H. E. Fox; *23, Oxon.; near Goring, 1860, H. Boswell; *24, Bucks.; High Wycombe, 1867, H. E. Fox: Little Marlow, 1903, G. C. Druce: Hambledon, 1909, G. C. Druce; *29, Cambs.; Chatteris, 1879, A. Fryer; *34, W. Glos.; Dursley, 1914, Miss E. S. Todd; *37, Worcs.; Malvern Links, 1885, R. F. Towndrow ["probably this"—E. Nelmes] (see *B.E.C. 1885 Rep.*, 138 (1886)); *41, Glam.; Swansea, 1888 (cult., Shirley, S. Derbysh.), W. R. Linton.

6, N. Som.; roadside bank near Axbridge, 1936, E. Nelmes (211). *21, Middx.; above Harefield Quarry, 1945, D. H. Kent, det. E. Nelmes. *50, Denb.; hedge bank near Gyffylliog, 1934, J. A. Whellan, det. E. Nelmes. 63, S.W. Yorks.; rail bank, Healey Lane, Bingley, G. A. Shaw, det. E. Nelmes (recorded as *C. divulsa* Stokes in Cheetham and Sledge, 1941: *Suppl. Yorks. Floras*, 116.

753/62. Carex divulsa Stokes. 39, Staffs.; Anslow, 1945. E. S. Edees (4639), det. E. Nelmes.

§753/63. Carex paniculata L. *76, Renfrew; Loch Libo, 1940, R. Mackechnie.

753/66. Carex disticha Huds. 64, M.W. York.; plentiful in drying-up carr between Healaugh and Askham Richard, with *C. paniculata*, 1944, E. C. Wallace—*C. appropinquata* (*paradoxa*) recorded thence by Lees, 1888: *Fl. W. Yorks.*, 461, could not be found.

§753/70. Carex incurva Lightf. 71, Man; correction: J. A. Whellan writes (from Rhodesia) that the specimen in the Manks Museum on which the record in Paton's List is based is not *C. incurva*, but probably *C. ovalis*—see *B.E.C. 1945 Rep.*, 51, 1947.

†754/10. Panicum sanguinale L. 21, Middx.; forecourt of Soya Foods Ltd., flour mill, Springwell Lock, D. H. Kent, det. C. E. Hubbard (as *Digitaria sanguinalis* (L.) Scop.).

†756/2b. Setaria viridis (L.) Beauv. var. majus (Gaud.) Koch. 30, Beds.; Sandy, J. G. Dony, det. C. E. Hubbard.

758/3. Spartina Townsendii H. & J. Groves. 51, Flint; side of R. Dee, a large patch at Talacre: 58, Ches.; between Garton and Parkgate, in early stage of colonisation; both 1945, Nora F. McMillan (1946: *N.W. Nat.*, *20*, 265-266).

§†765/1. Phalaris minor Retz. *30, Beds.; gravel pit, Eaton Socon, P. Taylor and J. G. Dony, railway siding, Flitwick, J. G. Dony, det. C. E. Hubbard.

§767/1. Hierochloe odorata (L.) Wahl. *H.39, Antrim; shore of Lough Neagh, R. D. Meikle and E. N. Carrothers.

§780/2(2). Agrostis gigantea Roth. *21, Middx.; waste land, Willesden, 1945, rubbish tip, Hounslow and meadow, Hanwell, D. H. Kent, det. C. E. Hubbard.

780/6k. Agrostis canina L. var. fascicularis Sincl. 106, E. Ross; S. Sutor near Cromarty, 1943, U. K. Duncan, det. C. E. Hubbard.

783/1. Calamagrostis epigejos (L.) Roth. 17, Surrey: Ham gravel pits, 1945, Mrs B. Welch (Lousley; 1946: 13).

785/1. Apera Spica-venti (L.) Beauv. †16, W. Kent; Greenhithe, 1933, Dr A. R. M. and R. A. F. Brenan: waste ground, Sevenoaks, 1936: waste ground, Tonbridge, 1937: waste ground, Green Street Green, 1939, J. P. M. Brenan.

787/1. Ammophila arenaria (L.) Link. 15, E. Kent; Lydd Common, abundant, with *Carex arenaria*, F. Rose—this area, 2½ miles from the present sea coast, was a belt of coastal dunes in pre-Roman times (Lewis, 1932: *Geogr. Journ.*, *80*, 309).

§789/1. Aira caryophyllea L. *61, S.E. Yorks.; Market Weighton, J. J. Marshall (Robinson, 1902: *Fl. E. Riding Yorks.*, 208).

791/1c. Deschampsia caespitosa (L.) Beauv. var. argentea S. F. Gray. 33, E. Glos.; osier bed near Tewkesbury, C. W. Bannister, comm. W. R. Price.

791/1f. Deschampsia caespitosa (L.) Beauv. var. parviflora (Thuill.) Dum. 30, Beds.; Cockayne Hatley Wood, J. G. Dony, det. C. E. Hubbard.

†794/5(2). AVENA LUDOVICIANA Durieu. 15, E. Kent; cornfield near Godmersham, D. H. KENT. 21, Middx.; rubbish tip, Hanwell, D. H. KENT. 20, [Beds.]; Studham, C. E. HUBBARD.

†794/6. AVENA STRIGOSA Schreb. 71, Man; sparingly in a field at Castletown, J. A. WHELLAN, confirmed by C. E. HUBBARD.

795/1c. ARRHENATHERUM ELATIUS (L.) J. & C. Presl var. PAUCIFLORUM (Baenitz) Druce. 106, E. Ross; Ethie Burn near Cromarty, 1943, U. K. DUNCAN, confirmed by C. E. HUBBARD.

§804/1. SESLERIA CAERULEA (L.) Ard. *59, S. Lancs.; north-east side of a limestone knoll near Clitheroe, A. TURNER, comm. A. J. WILMOTT.

†808/1. CYNOSURUS ECHINATUS L. *60, W. Lancs.; naturalised quite plentifully at base of sea wall at Ansdell, J. A. WHELLAN, confirmed by C. E. HUBBARD. 96, E.-Ness.; roadside near Coylum Bridge, Aviemore, 1944, R. MACKECHNIE.

809/1. KOELERIA GRACILIS Pers. 106, E. Ross; sea-shore, Rosemarkie, 1943, U. K. DUNCAN, det. C. E. HUBBARD.

§814/1. CATABROSA AQUATICA (L.) Beauv. *42, Brecon; Cathedine, W. of Wern-ddu, in marsh with *Iris*, *Sparganinum*, etc., E. MILNE-REDHEAD and H. K. AIRY SHAW, det. C. E. HUBBARD.

819/1b. DACTYLIS GLOMERATA L. var. COLLINA Schlechtendal. 95, Moray; sand-dunes, Hopeman, 1943, U. K. DUNCAN (as var. *abbreviata* Drej.).

820/1. DESMAZERIA MARINA (L.) Druce. 60, W. Lancs.; plentiful on shore at Ansdell, J. A. WHELLAN, confirmed by C. E. HUBBARD.

§†824/1. POA CHAIXII Vill. *35, Monm.; bank of lane by Pen-y-clawdd church, only one plant seen, N. Y. SANDWITH, confirmed by C. E. HUBBARD. *89, E. Perth; in three places about Pitlochry, N. D. SIMPSON.

824/6b. POA TRIVIALIS L. var. GLABRA Döll. 35, Mon.; Llandegfedd, A. E. WADE, comm. NAT. MUS. WALES.

824/10. POA COMPRESSA L. 17, Surrey; Hamsey Green, Warlingham, 1943, C. E. BRITTON, comm. E. C. WALLACE. 60, W. Lancs.; on the bridge at St Michaels on Wyre, S. P. ROWLANDS; on the sea wall at Ansdell, S. P. ROWLANDS and J. A. WHELLAN.

§825/3(2). GLYCERIA DECLINATA Bréb.—In Herb. Druce, det. C. E. HUBBARD: S.; Jersey; St Ouens, 1906, G. C. DRUCE; 18, S. Essex; S.W. of Epping by main London Road, H. K. AIRY SHAW and F. W.

Simpson (*Gram. Brit. Exsicc.* ex Herb. Kew. Distrib., No. 104); *21, Middx.; near Hampstead, 1844, Thomas Moore: near Barnet, 1867, F. Stratton; 32, Northants; Castlethorpe, 1909, G. C. Druce; 39, Staffs.; Hopedale, Alstonfield, 1890, W. H. Painter; *40, Salop; Madeley Court, 1894, W. H. Painter; *49, Caernarv.; Trefriw, 1885, W. Pamplin; *62, E. Yorks.; Gormire, 1933, J. F. G. Chapple, T. J. Foggitt and C. M. Rob; *74, Wigtown; Stranraer, 1899, G. C. Druce; 92, S. Aberdeen; Aberdeen (coll. I. A. Williams) cult. Kew 1938 (*Gram. Brit. Exsicc.* ex Herb. Kew. Distrib., No. 103); 100, Clyde Is.; Arran; Blackwaterfoot, 1904, A. Somerville.

826/1. Festuca rigida L. 22, Berks.; (2), a patch about 3 sq. metres on ground disturbed by war operations on top of White Horse Hill, T. G. B. Osborn, comm. J. F. G. Chapple (as *Scleropoa rigida* (L.) Griseb.).

826/4×829/1. Festulolium loliaceum (Huds.) P. Fournier. 21, Middx.; locally abundant in a grassy place on Hampstead Heath, 1945. J. A. Whellan, det. C. E. Hubbard; 60, W. Lancs.; plentiful on roadside bank at Ballam near Lytham, J. A. Whellan, confirmed by C. E. Hubbard.

§826/5. Festuca sylvatica Vill. 70, Cumb.; by the Liddell Water, Penton Linns, Miss C. W. Muirhead, comm. Carlisle Museum (as *F. sylvatica* Vill.): by Scale Beck Force; *71, Man; locally abundant in Glen Dhoon, J. A. Whellan, confirmed by C. E. Hubbard.

†826/6. Festuca heterophylla Lam. 17, Surrey; Littleton near Guildford, 1937, Lady Davy and C. M. Rob, det. W. O. Howarth.

826/7f. Festuca rubra L. var. arenaria (Osb.) Fries. 106, E. Ross; sand-dunes, Rosemarkie, 1943, U. K. Duncan, confirmed by C. E. Hubbard.

826/11. Festuca longifolia Thuill. 30, Beds.; East Hyde; Souldrop, J. G. Dony; Caddington, P. Taylor, det. C. E. Hubbard.

826/16b. Festuca ambigua Le Gall. 16, W. Kent; Chalk gravel-pit, F. Rose (as *Vulpia ambigua* (Le Gall) A. G. More).

§826/18. Festuca Myuros L. *66, Durham; Urpeth, J. W. H. Harrison (1946: *Vasc. Subst.*, *31*, 24)—remove from brackets in *C.F.*—Ed.

†827/9. Bromus inermis Leyss. 60, W. Lancs.; naturalised in great abundance at Ansdell and still flowering in November, J. A. Whellan, confirmed by C. E. Hubbard.

827/17. Bromus commutatus Schrad. 29, Cambs.; rough grassy ground, The Backs, Cambridge, 1946, Dr J. N. Mills and J. P. M. Brenan. 96, Easterness; waste ground, Allanfearn, near Inverness, 1943, U. K. Duncan.

827/17c. Bromus commutatus Schrad. var. pubens Wats. 33, E. Glos.; Ashchurch and adjacent districts, common locally, C. W. Bannister, comm. W. R. Price.

827/18. Bromus racemosus L. 30, Beds.; Tempsford, P. Taylor and J. G. Dony, det. C. E. Hubbard.

827/19b. Bromus hordaceus L. var. glabratus (Döll) Druce. 33, E. Glos.; Fiddington and Ashchurch district, not uncommon, C. W. Bannister, comm. W. R. Price.

§827/19(2). Bromus lepidus Holmb. 3, S. Devon; roadside, Sidbury, J. P. M. Brenan. *89, E. Perth; Glen Tilt, N. D. Simpson. *96, Easterness; hayfield, Allanfearn, near Inverness, 1943, U. K. Duncan, det. C. E. Hubbard.

827/19(3). Bromus Thominii Hard. 95, Elgin; sand-dunes, Hopeman, 1943, U. K. Duncan, det. C. E. Hubbard.

§†827/20. Bromus molliformis Lloyd. *30, Beds.; railway siding, Flitwick, J. G. Dony, det. C. E. Hubbard.

829/1b. Lolium perenne L. var. tenue (L.) Syme. 96, Easterness; "the Islands," Inverness, 1943, U. K. Duncan, det. C. E. Hubbard (as f. *tenue*).

839/1. Juniperus communis L. 109, Caithn.; prostrate in heather on Dwarwick Head, Dunnet, E. C. Wallace.

839/2. Juniperus sibirica Burgd. 108, W. Suth.; Meall Diamhain, head of Glen Oykell, alt. 2000 ft., E. C. Wallace.

844/3. Equisetum sylvaticum L. 108, W. Suth.; foot of quartzite cliffs, Loch Glendhu: Gleann Ardbhair, between Drumbeg and Kylesku, Miss C. W. Muirhead, comm. Carlisle Museum: swampy moorland, Luban Croma, Altnacealgach, E. C. Wallace.

844/9. Equisetum variegatum (Schleich.) Weber. 41, Glam.; Kenfig Dunes, in slacks associated with procumbent forms of *E. palustre*, E. Vachell, 1932, det. A. H. G. Alston—(see *B.E.C. 1935 Rep.*, 48): the plant is scarce and was then evidently overlooked, for I have known it for some time in this locality and also on dunes near Porthcawl, etc., E. Vachell.

851/1. Asplenium marinum L. 108, W. Suth.; rocks by the sea, near Kylesku, Loch Cairnbawn, Miss C. W. Muirhead, comm. Carlisle Mus.

853/2. Athyrium alpestre (Hoppe) Rylands. 106, E. Ross; Coire Ban, Creag Liath, head of Glen Oykell, E. C. Wallace.

856/1c. Dryopteris Borreri Newm. 30, Beds.; Hosther's Wood; Chiltern Green, 1945; Kidney Wood, Luton Hoo; King's Wood, Heath and Reach, P. Taylor.

§856/5. Dryopteris aemula (Brackenr.) Kuntze. *66, Durham; Quarrington Hill, J. W. H. Harrison (1945: *Vasc. Subst.*, *30* 39).

856/7. Thelypteris Oreopteris (Ehrh.) C. Chr. 24, [Beds.]; New Wavendon Heath, P. Taylor.

*856/10. Dryopteris Linnaeana C. Chr. *26, W. Suff.; Ash Plantation, Cavenham Heath, apparently quite native, one patch only, 1941, E. F. Warburg.

858/1. Polypodium vulgare L. 28, W. Norf.; one patch a yard or so in extent among coarse grasses and *Carices* on sand-dunes between Holme House and Gore Point, Holme-next-the-Sea, Dr J. N. Mills and J. P. M. Brenan—this record is made on account of the habitat, to us extraordinary and unprecedented for this species. The fronds were rather leathery in texture, narrow and somewhat twisted, but in other respects the plants appear quite normal.

§859/1. Ceterach officinarum DC. 21, Middx.; brick tombs in Perivale Churchyard, 1945, D. H. Kent. *30, Beds.; Stevington, P. Taylor.

863/2. Hymenophyllum peltatum (Poir.) Desv. 71, Man; on wet rocks in Sulby Glen near Tholt y Will, J. A. Whellan. 108, W. Suth.; frequent in wooded inlets near Kylesku, Loch Cairnbawn, Miss C. W. Muirhead, comm. Carlisle Museum.

865/1. Botrychium Lunaria (L.) Sw. 15, E. Kent; in clayey pasture on summit of Detling Hill, J. Braybrooke Marshall, c. 1930; (one plant in 1946, F. Rose).

869/1. Isoetes lacustris L. 108, W. Suth.; Loch Drumbeg, between Lochinver and Kylesku, Miss C. W. Muirhead, comm. Carlisle Museum.

870/6. Lycopodium inundatum L. 24 [Beds.]; New Wavendon Heath, P. Taylor.

872/2. Nitella opaca Ag. 17, Surrey; Frensham Great Pond, L. C. Lyon and G. O. Allen (388)—as f. *conglobata* Mig. 30, Beds.; Millbrook, J. G. Dony, det. G. O. Allen. 69b, N. Lancs.; Lost Tarn near Outgate and Brathay Quarries, J. W. G. Lund, det. G. O. Allen (f. *conglobata* Mig.). 108, W. Suth.; lochan near Kylesku Hotel, Loch Cairnbawn: Loch Drumbeg, between Kylesku and Lochinver: C. W. Muirhead, comm. Carlisle Museum, det. J. Sinclair.

§872/5. Nitella translucens Ag. ‡69, Westm.; Crook Reservoir, T. T. Macan, comm. J. W. G. Lund, det. G. O. Allen—(see Wilson, 1938: *Flora Westm.*, 275, for earlier records). *108, W. Suth.; Lochan near Kylesku Hotel, Loch Cairnbawn, C. W. Muirhead, comm. Carlisle Museum.

873/1. Tolypella intricata Leonh. 30, Beds.; Henwick Lodge. 1945, J. G. Dony, det. G. O. Allen.

876/2. Chara canescens Lois. 15, E. Kent; Birchington Marshes, near R. Wantsum railway crossing, G. O. Allen.

§876/10. Chara baltica Bruz. *15, E. Kent; Birchington Marshes. near R. Wantsum railway crossing, G. O. Allen.

876/12. Chara aspera Willd. 108, W. Suth.; ditch near Skaig Bridge, Loch Assynt, C. W. Muirhead, comm. Carlisle Museum.

876/16b. Chara globularis Thuill. 30, Beds.; Pertenhall, 1945, J. G. Dony, det. G. O. Allen.

§876/17. Chara delicatula Ag. *59, S. Lancs.; Otterspool Park. Liverpool, 1945, Pamela A. Jones, comm. A. G. Farmer, det. G. O. Allen: drainage ditch, dune slack, Freshfield sand-dunes, A. J. Farmer, det. G. O. Allen.

*876/17c. Chara delicatula Ag. var. annulata (Wallm.) Gr. & B.-W. *69b, N. Lancs.; one of the Brathay Quarries between Ambleside and Hawkeshead, J. W. G. Lund, det. G. O. Allen.

NOTE ON SAGINA PROCUMBENS VAR. DAVIESII (DRUCE) DRUCE*

F. R. Elliston Wright.

Sagina procumbens var. *Daviesii* (Druce) Druce is a rare plant, and not well known to British botanists.

The plant was first described from material found by the Rev. Hugh Davies over one hundred years ago at Beaumaris, in Anglesey. It has been noted also from Barcombe, Sussex; Leith Hill, Surrey; Littlestone-on-Sea, Kent; and Rugeley, Staffs. I have received material of the plant through the kindness of Lady Davy from some unremembered locality, and she has found it herself at Littlestone. It was found by N. D. Simpson in S.Hants., 1942. A small typical plant from a wall, Marlborough College, 1943, is still growing in my garden. Dr Lloyd Praeger informs me that there is an old record 126 years ago for a double flowering *Sagina*, which was probably this plant, in Co. Down; otherwise I can find no records for Scotland or Ireland. Those interested may refer to *Baxter's Brit. Phaen. Bot., 3*, t. 199, f. 8 (1837) (the date 1817 in this should be 1815); 1912: *Journ. Bot.*, p. 288; 1913: *Journ. Bot.*, p. 103 and p. 336; *B.E.C. 1919 Rep.*, p. 279; *B.E.C. 1926 Rep.*, p. 867.

The plant differs in no way in its vegetative parts and growth from *Sagina procumbens* L., except that it is far more subject to the destructive attack of *Puccinia Saginae*, with, I think, aphides as frequent vectors.

The large and conspicuous double flowers are distinctive. They are freely produced throughout the summer, they are very persistent and may endure for fourteen days before shrivelling, making no movements for closure or deflexion of peduncle during wet weather or at night. Well formed flowers may be 4 mm. in diameter, the outer petals well exceeding the four sepals, which in no way differ from the sepals of *S. procumbens* and are not spread when the flower withers.

The petals gradually decrease in size towards the centre of the flower until they become too minute to count. If a conversion into petals of all members or parts of the flower stem above the normal sepals, even counting the stamens as ten, is considered, the number of petals in var. *Daviesii* would far exceed this requirement, unless ovules are included. Instances of transformation of ovules into leafy structures have been found in cases of antholysis.

There is no trace of reproductive organs; the plant is completely sterile and can only be propagated by vegetative methods.

There is no indication of infection or injury by gall-producing agencies. Most plants growing under equal and favourable conditions tend to constancy of form and, if vegetable reproduction is aimed at for any special reason, then petal suppression is more usual.

*See Plate 1.

In studying various forms of double flowers and other monstrous flowers, it becomes evident that there is a class of what may be termed truly double flowers, which is quite distinct from those examples of what is known as antholysis, which include cases of petaloidy and many other forms where numerous petals and other structures are formed, replacing stamens and other flower parts in these abnormal flowers. Although all the flower parts may be altered, they are variously altered, not only in different flowers on the same plant, but frequently as petals, leafy structures, etc., with different grades of doubling of these varying structures: also these abnormal flowers may be produced by the influence of external conditions. The best known are the productions by mites and by climatic conditions.

Henslow considered petaloidy to result from a weakened reproductive energy with factors of dryness and lack of soil nutrition as aiding influences. Brenchley considered that lack of available phosphates, though not affecting vegetative growth, causes suppression of fruiting parts.

In the other distinct class of truly double flowers, the flowers are all uniform without variation, and they are not produced by the influence of external conditions. In most of these truly double flowers, which are completely sterile, the influence of heredity would seem on first thoughts to be precluded, but the work of Miss E. R. Saunders has definitely shown that, in the case of stocks, etc., although the doubles are incapable of seed production, the influence of heredity is all important, some singles possessing the quality, others not. That is, some singles can only give rise to singles, others carry in their genes some factor enabling them to produce a certain proportion of doubles. Miss Saunders has clearly shown that by selection of seed from these " ever sporting " singles, a definite proportion of doubles can be obtained, apart from any influence of external cultural factors. Similarly, then, it is quite likely that there do exist among the population of *S. procumbens* some single-flowering plants possessing the factor for throwing doubles.

S. procumbens var. *Daviesii* seemingly belongs to the class of truly double flowers and wherever the plant occurs it has been found in the same unchangeable form. We may reasonably hold the theory that the plant is a recessive mutant; how such mutation for doubleness first arose will probably remain unknown. Short-wave radiations have produced experimental mutations, and in nature external factors as extreme heat and cold have caused duplication of chromosomes.

The claim that the etiology of the combination of doubleness and sterility is due to the presence of a lethal gene is more than doubtful.

That this exuberant petal production should occur in a plant which, in the area of Britain where it has been found, is normally of a form with abortive or absent petals and suppression of the epipetalous stamens, as in the other oligomerous Pearlworts, seems remarkable. The large size of the petals is deserving of notice. Though many double flowers grown by horticulturists have increased size of petal, this must chiefly be due to artificial selection.

S. procumbens is descended from a fully petaloid, pentamerous plant, and, on high ground in Scotland, is quite commonly seen pentamerous with well-formed petals, which does not support the theory that the character of petal abortion in *S. procumbens* must be carried in a gene, the loss or fragmentation of which gene in one parent may lead to a different balancing of genes, causing variation in character or number of petals.

THE UNRAVELLING OF BRITISH " RUBUS LEUCANDRUS FOCKE "

Wm. Watson

It will help to clarify matters if the development of the ideas of British botanists about *Rubus leucandrus* Focke is briefly traced and summarised.

After visiting Britain in 1889 Focke wrote (1890: *J. Bot.*, 129), " Under *R. leucandrus* Focke I put a bramble which I saw near West Moors and Daggons, Dorset."

In his " Essay " W. M. Rogers (1892-3: *J. Bot.*) published a description of No. 21, *R. leucandrus* Focke, which apparently is Focke's description of the German *R. leucandrus* modified to embrace the British brambles, next to be enumerated here, which Rogers considered to belong also to *R. leucandrus*. At the same time he remarks, " Quite the typical plant does not seem to have been yet found in Britain,"—and then describes that typical plant (No. 1). He next refers to " a frequent Herefordshire form growing in marshy thickets " which he says " comes rather near it " (No. 2). He goes on to speak of and describe " the form referred to by Dr Focke, which is abundant . . . . in Hants. and Dorset " (No. 3). After this comes a description of " No. 22. *R. ? hirtifolius* Muell. & Wirtg.", found in " Woods (Corn., Dev. and Dors.)" and seen by Dr Focke " growing near Plymouth in 1889 ": which Rogers says he considers to be nearer *R. leucandrus* [meaning No. 3] than to *R. pyramidalis* Kalt. (No. 4.) It was presumably this bramble No. 4 to which Focke was already referring when he said (1877: *Syn. Rub. Germ.*, 212) he believed he had recognised *R. leucandrus* among the brambles sent to him by Archer Briggs from the Plymouth neighbourhood.

Now in Hants. and Dorset, around Bournemouth, there was not one form only that Rogers looked upon as *R. leucandrus*, as, in addition to No. 3 there was a bramble which Rogers called *R. leucandrus*, but which was afterwards described and named as a new species, *R. purbeckensis*, by Barton and Riddelsdell. (No. 5.)

In the *Set of British Rubi* issued by E. F. Linton, W. R. Linton, R. P. Murray, and W. M. Rogers two of the above forms were included: viz., No. 3 and No. 2. The latter is said by Rogers in his *Handbook*, p. 27, to be " with great difficulty separated from *R. carpinifolius*."

In my opinion only the first of these brambles Nos. 1 to 5 is *R. leucandrus* Focke. No. 1, it will be noted, was believed by Rogers not to have been found in Britain. Probably such was the case at that time, but I have this year (1946) sent a supply of specimens of this, the genuine *R. leucandrus* Focke, No. 1 above, to the Club's Distributor for distribution. They came from a bush that appeared spontaneously two years ago at Bickley, W. Kent, but I would mention that I collected the true *R. leucandrus* Focke in 1936 in W. Sussex at (i) Cocking Causeway, at (ii) Iping Common, and previously (iii) near West Lavington Church. I have not seen this species at or from any other British station. I saw it around Malmédy, Belgium, in 1937.

Nos. 2, 3, 4 and 5, the four spurious British "*leucandrus*," I assign as follows:—

No. 2 is *R. carpinifolius* Wh. & N. I have seen this dissected-leaved state of the plant in saturated soil in Coughton Marsh, Herefordshire, the normal state growing close at hand on firm ground.

No. 3. I can find no name applying to this bramble. Sudre identifies it as *R. Muenteri* Marss., but I consider that in this instance he was mistaken. The bramble has not the sulcate stem, the very long-stalked terminal leaflet, and the greatly-branched umbrella-shaped build which Marsson describes. (See below.)

No. 4 is *R. danicus* Focke ex Frid. & Gel. I have a specimen of the Plymouth bramble collected by Briggs in 1881 and labelled by him as *R. hirtifolius* Muell.; and I have seen a specimen of the same bramble collected by R. P. Murray in 1890 at Bailey Gate, Dorset, and labelled by him as *R. leucandrus* Focke.

No. 5 also is *R. danicus* Focke ex Frid. & Gel. I have a Bournemouth specimen collected by Rogers, and named by him *R. leucandrus* Focke. I may mention that I have found the same bramble in W. Sussex and in various other counties in England, and also in Belgium. I have also seen specimens, Scottish and German, named *R. danicus* by Focke. Whilst on the subject of *R. danicus* I may perhaps add that *R. hesperius* Rogers also is, I consider, *R. danicus* Focke ex Frid. & Gel.

No. 3, being thus left without a name or description, is described here and named as a new species, as follows:—

Rubus pullifolius SP. NOV. [Sect. SILVATICI, subsect. *Virescentes* Genev.].

Eglandulosus. Turio obtusangulus glabrescens purpurascens mox aliquantum pruinosus; aculei multi haud magni sat inaequales graciles reclinati; folia quinata digitata, supra saturate viridia, subtus dilutiora, primo pubescentia dein glabrescentia atque adeo nequaquam mollia, stipulae lineari-lanceolatae; foliola omnia imbricata plicata, terminale suborbiculare ovatum vel ellipticum breviter acuminatum vel cuspidatum argute serratum, petiolulo fere triplo longius. Panicula omni in parte tomentosa lata fere pyramidalis, rhachis flexuosa glandulas sessiles gerens, aculei breviusculi subulati reclinati brunnei, foliola terminalia elliptica cuneata breviter acuminata, quorum suprema subtus incana. Flores magni; sepala cinereo-viridia margine albo ovata cuspidata, inermia, deflorata reflexa, petala ovata breviter unguiculata, alabastro dilute roseola expansa candida, subtus tomentella, supra prope em ungu pilosula; stamina alba longa; styli albidi; germina pilosa; fructus subglobosus.

Type in Hb. Wm. Watson, collected 8 September 1936 at Southampton Common, S. Hants.

Distribution. S. Hants., 11 (frequent); Dorset, 9. First found by H. Groves at Shirley, S. Hants., 1879, specimen in Hb. Babington. as "*imbricatus*."

Eglandular. Stem obtuse angled, glabrescent, green to purplish, subpruinose. Prickles many, moderate, slender, declining. Leaves quinate, digitate, deep green above, paler, pubescent, glabrescent (not soft) beneath, stipules linear-lanceolate; leaflets imbricate, plicate, terminal leaflet roundish ovate or elliptical, short-pointed, sharply, simply or rather doubly serrate. Panicle closely felted, broad, subpyramidal, branches spreading; rachis flexuose, bearing crowded sessile glandules, prickles rather short, subulate, declining, brownish; terminal leaflets elliptical-cuneate, shortly pointed; the upper simple leaves grey beneath. Sepals greyish green, white-bordered, ovate subcuspidate, unarmed, reflexed. Flowers large; petals ovate, pinkish in bud, then white, downy beneath, slightly pilose above in the region of the claw, stamens white, long, styles pallid, young carpels pilose, fruit subglobose.

FICUS CARICA L. IN BRITAIN

J. Edward Lousley

One of the most surprising features of the flora of the London bombed sites in 1945 and 1946 has been the appearance of the fig in a number of places where its source of introduction is difficult to explain. I first noticed it in the City, Middlesex, v.-c. 21, in June 1945 in a fire-place of a blitzed building about 100 yards from the famous old church of St Olave, Hart St. The plant was a large one and since it was growing in a former room in the centre of a block of buildings there could be very little doubt that it had appeared there since the bombing. I considered the possibility that it might have been dragged up from the churchyard and thrown down alive in the fireplace, but apart from the improbability of survival after such treatment, the distance from the churchyard made it unlikely, and the rapid additional growth during the following year was compatible with its introduction from seed.

The discovery of another plant in a basement in the Temple shortly afterwards provided no additional evidence, but one growing out of a vertical wall near Water Lane near Ludgate Hill was in a situation where planting would be impossible. Similarly a large plant on the site of Wallis', Holborn Circus, would seem to be in a place where origin from seed offered the only solution. All four of these City plants were about a metre in height when first observed, but their subsequent growth suggests that they probably germinated about 1943 if they grew from seed in their present situations.

At the Middlesex Hospital Bicentenary Exhibition on May 25th 1946 a plant of *Ficus Carica* pulled up by the root in Old Gloucester St. (S. of Queen Sq.) was exhibited by Dr John Rivers. It was about 35-40 cm. tall and the stem showed clearly where the previous season's growth had ended. Its condition was compatible with having grown from seed which germinated early in 1945, or perhaps in the autumn of 1944. A plant only a little larger was shown to me on July 8, 1946, by Mr D. McClintock on a site in Ebury St., Victoria, but it was mutilated and growing with shrubs which were probably there before the war.

This is not the first time that figs have appeared on cleared sites in London. In 1910 Shenstone found cultivated forms of *Ficus Carica* on a site in Faringdon Street, formerly occupied by works and cleared about two years earlier. He later found one on a site behind the British Museum, Bloomsbury (1912: *Journ. Bot.*, *50*, 119 and 121).

The fig is known to stand the smoky atmosphere of London well, and there are a good many sizeable planted trees in the churchyards and parks. Le Sueur, writing in the *Evening News*, April 16, 1929, states that there was then one in St Paul's Churchyard more than 20 feet in height, while Webster (1920: *London Trees*, 59) records one at Whitefriars fully twice as tall. In the City, however, the fig is not really common in the churchyards, being largely replaced by *Aralia* spp.

Horticultural works generally recommend planting the fig in plenty of brickbats, porous stones and lime rubble which are precisely the conditions offered on bombed sites. It is said to stand 10-20° of frost under favourable conditions, and when grown from cuttings, which is the usual practice, fruit may be expected in 2 to 4 years. Since it is obvious that the London adventive plants can seldom if ever have come from cuttings, and since caprification is impossible in this country in the absence of the gall-wasp, it would seem that our figs must have originated from seed of fruits brought from abroad. Such seed would require a habitat such as brickwork raised to a high temperature by the sun before they could germinate, and comparison of the following records would suggest that the fig only occurs in this country in places where it might come from seed under such conditions:—

v.-c. 6, N. Somerset; Wharf-wall at Highbridge, Miss Roper; coast rocks near Clevedon, Rev. E. Ellman: both ex White (1918: *Journ. Bot.*, *56*, 79).

v.-c. 9, Dorset; Chesil Beach, a fair sized plant, Druce & Van de Weyer, *B.E.C. 1923 Rep.*, 211, 1924. (Specimen in Hb. Druce).

v.-c. 17, Surrey; Several bushes on the river-wall by the Thames between Kew and Mortlake, R. N. Parker and J. P. M. Brenan, *B.E.C. 1935 Rep.*, 41, 1936. Still there, 1946.

v.-c. 21, Middlesex; Faringdon St and Bloomsbury, Shenstone (1912: *Journ. Bot.*, *50*, 119 & 121); various places in the City and West End, Lousley, Rivers & McClintock as above.

v.-c. 22, Berks.; "A self-sown plant grew to a considerable size near the reservoir at Didcot. It was eventually removed to a garden," Druce, *B.E.C. 1918 Rep.* (*Suppl. Fl. Berks.*), 472, 1919.

v.-c. 34, W. Gloucester; "Dwarf trees of many years' growth have sprung from a wall of the Floating Harbour near Bristol Bridge, in the centre of the city," White (1918: *Journ. Bot.*, *56*, 79); Avonmouth Docks, established before 1928, Mrs C. I. Sandwith, B.E.C. *1932 Rep.*, 357, 1933.

v.-c. 41, Glamorgan: Near Mumbles Head, Webb, *B.E.C. 1923 Rep.*, 211, 1924; On the cliffs at Mumbles, far out of reach, Webb, *B.E.C. 1927 Rep.*, 417, 1928.

v.-c. 44, Carmarthen; Stony dykes, Pwll Marsh, near Pembrey, 1944, J. A. Webb, *B.E.C. 1943/4 Rep.*, 754, 1946.

v.-c. 63, S.-W. Yorks.; Stone embankment by canal, Sowerby Bridge, 1946.

The fig-seeds from which the plants spring are probably in most cases those sold in fruiterers' shops. Such a shop occupied the site immediately behind the wall near Water Lane, City of London, where the plant now grows, and it is at least possible that figs in stock at the time of the damage got scattered. The plants growing by water at Highbridge, Kew, Bristol, Pembrey, and Sowerby Bridge may have originated from fruits which floated down. Those on the London bombed sites presumably came from figs thrown away, but this seems surprising in view of the scarcity of the fruit during the recent war.

The usual means of dispersal of the tree would seem to be by birds (Ridley, 1930: *The Dispersal of Plants throughout the World, passim*), and at least one bird which visits Britain, the Golden Oriole, *Oriolus oriolus oriolus* (L.), is said to feed on figs. It is of interest that in Coward's work this bird is depicted perched on this tree (Coward, *The Birds of the British Isles and their Eggs, Series I*, ed. 2, tab. 16). The Golden Oriole visits our islands in late April or the beginning of May on its northern migration from Africa where it spends the winter. In the course of the journey it passes through districts of the Mediterranean where the fig is abundantly cultivated. Although the Golden Oriole is too rare in this country to have much influence, the possibility of some fruit-eating bird being responsible for some of the occurrences in Britain should be borne in mind, though from the evidence known to me it does not seem very likely.

The cultivated fig varies greatly in the shape of its leaves and this is reflected in the adventive plants in this country. Those from the embankment between Kew and Mortlake have all, in my experience, very narrow lobes. The terminal lobe is about 5 times as long as the width at the base, spathulate, and incised towards the apex. Those from Water Lane are very similar. The St Olave's plant on the other hand is 5- rather than 7-lobed and the terminal lobes are barely twice as long as broad at the narrowest part. Moreover, the Kew plant has a conspicuous rusty-coloured indumentum on the nerves below, whereas the St Olave's fig has a less dense white indumentum, and the texture of the leaves is thinner and they are of a darker green. The Ebury St. fig is intermediate.

Similar differences occur in the *Ficus Carica* of the Mediteranneau and S. Asia, and attempts have been made to assign varietal names. In a genus which is well-known for heterophylly on individual plants it seems doubtful whether such varieties can be of much value in dealing with a cultivated species. In the growing examples which have come under my observation the differences in leaf-shape appear to be those one would expect from the habitat—those growing out of walls have the tougher, more divided leaves, while those like the St Olave's plant, which grow in less exposed places, have larger leaf-surfaces of thinner texture.

Since writing the above account towards the end of 1946, I have been surprised to find how common the fig is in Central London. On bombed sites north of Holborn it is particularly plentiful. Between Holborn and Fleet Street there are a number of plants, while others are scattered about the West End. Having regard to the restricted import of the fruit during the war years, it is more difficult than ever to suggest any convincing explanation of such widespread distribution. The survival of all the plants in the City after the exceptionally hard winter of 1946-47 shows that once established the fig can maintain itself in suitable places in this country.

In 1931 Debray and Senay recorded two plants from Le Havre and another from the former British camp at Honfleur (*Bull. Soc. Linn. Seine mar., 1932, No. 1*, p. 24) and suggested, as I have done, that they probably originated from seeds rejected with the edible fruits. The same writers state that when part of Le Havre was left uninhabited in 1943 figs appeared and persisted in September 1944 after bombing had destroyed the buildings (*Bull. Soc. bot. Fr., 92*, 229, 1945).

In September 1947 I saw a fine plant of *Ficus Carica* some 2 metres tall on a rubbish dump at Northolt, Middlesex. In such a place the method of introduction might be endoanthropochoric and the same is possible indirectly on river and harbour walls. But I am convinced that most of the bombed site stations cannot have such an origin, and further observations are required. In addition, figs are sometimes to be seen by railways—such as near Peckham and Mitcham Junction, Surrey. If these, indeed, originate from parts of fruits thrown out of carriage windows then the feeding habits of the British public must be more varied than I had supposed! There can be no doubt that *Ficus Carica* is becoming increasingly frequent in Britain.

NOTES ON BRITISH CARICES — VII*

E. Nelmes

Carex leporina L.

The name *Carex leporina* L. (*Sp. Pl.*, 973, 1753) was published with the following diagnostic phrase and synonymy:—

> 6. Carex spica composita, spiculis ovatis sessilibus approximatis alternis androgynis nudis. *Fl. suec.*, 751. *Gmel sib.*, 1, p. 147.
>
> Carex spicis ternis sessilibus confertis androgynis. *Fl. lapp.*, 322.
>
> Gramen cyperoides, spica e pluribus spicis mollibus composita. *Scheuch. gram.*, 456.
>
> Gramen cyperoides palustre majus, spica divisa. *Bauh. pin.*, 6. *Moris. hist.*, 3, *p.* 244, *s.* 8, *t.* 12, *f.* 29.
>
> *Habitat in* Europae *pratis udis.* ♃.

Diagnostic Phrase.

The diagnostic phrase describes equally well each of the two species to which the name *C. leporina* L. has been applied: *C. Lachenalii* Schkuhr (to take the best known of its several epithets) and *C. ovalis* Good., and both occur in Sweden and Siberia.

Type Specimens.

Two specimens, one of each of these two species, on separate sheets, are pinned together in the Linnaean Herbarium, the first being *C. Lachenalii* and the second *C. ovalis.* A third attached sheet, of *C. praecox* Schreb., is not annotated by Linnaeus and does not come under discussion here.

At the top of the first sheet Linnaeus has written the number "322," which corresponds with the number of this species in the *Flora Lapponica*, and thus it seems extremely likely that he collected this specimen on his expedition to Lapland and from it drew up his description for the *Flora*. Specimen and description agree precisely. It was no doubt an enthusiastic young Linnaeus who set off on the expedition to Lapland, and he would be justly proud of its results and for this reason almost certain to preserve the plants, apart from the purpose of describing them in his *Flora*. On this sheet, in addition to the number "322," Linnaeus has written "6 leporina," and as this species is no. 6 in the *Species Plantarum*, ed. 1 (1753), it is reasonable to assume that the specimen which had pride of place in his herbarium and in the citations in the *Species Plantarum* was an important element in his conception of his *C. leporina*. It should, however, be noted that Lin-

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*Continued from 1942: *Journ. Bot.*, *80*, 105-112.

naeus made three enumerations of the contents of his herbarium, in 1753-54, 1755, and 1767 respectively, and *C. leporina* does not occur, according to Jackson's *Index to the Linnaean Herbarium*, until the enumeration of 1767. On this evidence this species was not added to Linnaeus's herbarium until some time between 1755 and 1767, which seems contrary to the suggestion that the first specimen was collected by him in Lapland many years before, unless, of course, Linnaeus for a long time kept his Lapland plants separate from his main herbarium, incorporating them at some date between 1755 and 1767. Possibly its omission from the first enumeration was merely a clerical error. The annotation "6 leporina" is almost certain to have been added before the publication of the second edition of *Sp. Pl.* (1763), because in this work *C. leporina* is species no. 8.

On the second sheet, that of *C. ovalis*, which bears Hudson's label, Linnaeus has written "leporina," which, with its attachment to the other sheet and its inclusion in Linnaeus's treatment of *C. leporina*, indicates that this common European plant is part of his species. This view is strengthened by the fact that there is a specimen of this species in Burser's herbarium determined by Linnaeus as *C. leporina*.

Citations.

The citations which follow the diagnosis also cover the same two species, the plant of the *Flora Lapponica*, as explained above, being *C. Lachenalii* (in spite of references to Scheuchzer, Ray, and Morison, who were describing *C. ovalis*), while that of the other authors is mainly or wholly *C. ovalis*. It is natural that there should be more references to *C. ovalis* than to *C. Lachenalii* as the former is the commoner plant in Scandinavia and much the commoner in more southern parts of Europe.

The treatment under no. 751 in the *Flora Suecica* is similar to that of *C. leporina* in the *Species Plantarum*. The citations below the diagnosis are the same in each work, except that references to Haller and Micheli in the *Fl. Suec.* are omitted from the *Sp. Pl.* The same two species, therefore, are covered in both works. Finally, in the *Fl. Suec.* below the habitat, Linnaeus has the following: "*Obs.* Spicae tres vel plures valde crassae, approximatae, constantes capsulis acuminatis cum bractea singulo germini subjecta longitudine capsulae, ferruginea." This, on the whole, stresses the *C. ovalis* element, which Linnaeus may thus be indicating as the commoner one in Sweden, though probably "ferruginea" and certainly "tres" apply better to the other plant: normal inflorescences of *C. ovalis* do not consist of fewer than four spikes.

In the second edition of the *Species Plantarum*, 1381 (1763), Linnaeus adds the following to his synonyms: "Carex angustifolia, caule triquetro, spicis pluribus elegantibus parum inter se distantibus. *Segu. ver.*, 1, *p.* 124, *t.* I, *f.* 2." This figure is undoubtedly of *C. ovalis* though Seguier's diagnosis applies to fig. 3 of the same plate, a very different species. Linnaeus also has this note in ed. 2: "Spica e spiculis 5 s. 6. approximatis. Paleis flosculos distinguentibus, griseis, seminibus ipsis longioribus. Styli incurvi." This points to *C. ovalis,* as the inflorescence of *C. Lachenalii* usually bears but three spikes, though there are up to six in var. *pleiostachya* Drejer, which occurs in Scandinavia and other parts of Europe.

By his note in the second edition of the *Species Plantarum* Linnaeus gives the impression that his conception of *C. leporina* has gradually changed from *C. Lachenalii* to *C. ovalis.* This change of view, if such it is, on the part of Linnaeus, is not sufficiently definitely expressed to constitute choice of type, seeing that twelve years had elapsed since the publication of *C. leporina*, covering by joint treatment the two elements, *C. Lachenalii* and *C. ovalis.* Furthermore, the same diagnosis and the same citations, including the *C. Lachenalii* reference, are retained, and the specimen of *C. Lachenalii* is not removed from its premier place in the herbarium nor are its number and identification changed.

VIEWS OF LINNAEUS'S CONTEMPORARIES.

Smith's opinion as to the true *C. leporina* of Linnaeus was very strong, as indicated by his annotations on the Linnaean sheets (on the first he wrote " vera " and on the second " Fl. Angl. non Linn."), and a quotation from his *English Flora,* i. 83 (1828), may be worth giving here: " The real *C. leporina*, certainly, by an original specimen, *n.* 322 of the Linnaean *Fl. Lapponica*, is an alpine species, but half the size of this [*C. ovalis* Gooden.] with 3 or 4 nearly globular *spikelets*, and an ovate smooth-edged *corolla*, longer than the *scales*. It is *C. Lachenalii* of Schkuhr, *t.* Y. *f.* 79. Linnaeus undoubtedly confounded both together under *n.* 837, of *Fl. Suec. ed.* 2, where the description answers to the alpine plant; which therefore I cannot but consider as *C. leporina*, though very sorry to differ from Dr Wahlenberg, who zealously contends for a contrary opinion, and calls my *leporina* by the name of *lagopina*. Willdenow, Schkuhr, and *Fl. Dan.*, *t.* 294, agree with me; as did the late Mr. Davall, from a comparison of Swiss specimens with the Linnaean characters. The question is indeed a matter of fact rather than of opinion."

Smith's friend, Goodenough, concurred in this point of view. Following his description of *C. ovalis* in *Trans. Linn. Soc.*, ii, 149 (1794), he says: " It has been lately discovered, that we have all along been mistaken in this very common plant. The error perhaps rests with *Linnaeus* himself, who joined the plant, he originally named *leporina*, with this we are now treating of. The mistake took place even so early as the publication of *Fl. Lapponica,* as appears from his quoting *Morison's* figures. The original *leporina*, now preserved in Dr Smith's (the Linnean) herbarium, has only three spikelets, is a plant much smaller, and differs in many respects."

Wahlenberg, a leading Swedish botanist at the beginning of last century, was, as mentioned above (by Smith), of " a contrary opinion," being convinced that the true *C. leporina* L. was the species described by Goodenough as *C. ovalis.*

He says in his *Fl. Lapp.*, 228-229 (1812), that *C. ovalis* grows in the wooded region where Linnaeus himself collected his *C. leporina*, but that his own species, *C. lagopina* (*C. Lachenalii* Schkuhr), on the other hand, occurs only in alpine soils where Linnaeus said that he never saw *C. leporina*. Wahlenberg goes on to contend that from these considerations and from the certain evidence of the Burser herbarium *C. ovalis* is the real *C. leporina* of Linnaeus. But, he adds, even if it is not. there seems no reason for rejecting the definitely known plant of the *Flora Suecica*, and looking for an uncertain one from the *Flora Lapponica*. Is not this, he says, to chase a mere phantom? His concluding argument runs like this: Surely Linnaeus did not have his species irrevocably fixed in his boyhood? It would be better to accept as final determinations those of his mature manhood, especially plants of Sweden, rejecting the confusions of his old age. Wahlenberg is apparently alluding to Linnaeus's possibly fluctuating conceptions of *C. leporina* in the *Flora Lapponica*, *Flora Suecica*, and *Species Plantarum*, published when their author was 30, 38, and 46 years of age respectively! It may be noted that Wahlenberg probably never saw Linnaeus's herbarium, as this came to England from Sweden in 1784, when Wahlenberg was four years old. If he had seen the first of the two specimens in the Linnaean herbarium he would scarcely have considered it an "uncertain" plant. Further, as shown earlier in this paper, the treatment of *C. leporina* in *Flora Suecica* covers both the species under discussion. Both occur in Sweden but apparently Linnaeus knew the lowland one better than the other, though this does not affect the identity of *C. leporina*.

Hudson includes *C. leporina* in his *Flora Anglica* (1762). His diagnosis and citations are almost an exact copy of those of Linnaeus. There is no attempt at division into two elements, and probably the common English plant, *C. ovalis*, was the only part of the composite *C. leporina* L. known to him. Continental authors such as Schreber (1771), Leers (1775) and Roth (1788) did much the same thing, while others appear to have followed Wahlenberg in a more critical method of accepting *C. ovalis* as the Linnaean species. *C. mollis* Gilib. (1792) and *C. nuda* Lam. (1793) are names chosen by their authors to replace *C. leporina* L., and they are therefore superfluous. Moreover, there was no recognition by Gilibert and Lamarck that Linnaeus covered more than the one species, *C. ovalis* Gooden., by his *C. leporina*.

Goodenough, in his treatment of *C. leporina* L., was in anticipatory accord with Art. 52 of the Rules of Botanical Nomenclature, ed. III (1935). He divided the Linnaean species into two, retaining the original epithet *leporina* for one of them, and giving a new one, *ovalis*, to the other. Although Linnaeus did not indicate a type, it would appear certain that the Lapland specimen in his herbarium should be regarded as such, as was done by Goodenough, who appears to have been the first author to deal critically with *C. leporina* L.

A SYNOPSIS OF THE BRITISH FESCUES

W. O. Howarth, D.Sc., F.L.S.

Terms used: rachilla = spikelet axis; glumes = sterile glumes; G I = lower sterile glume, G II = upper sterile glume, G III, G IV, etc. = lemmas = flowering glumes = paleae inferior "pale" = palea superior; length of spikelet measured from base of G I to apex of G IV (excluding awn); length of lemma, measure G IV (excluding awn); radical leaves = those of a vegetative (sterile) shoot; vernation, conduplicate = folded longitudinally on midrib, upper surface within, convolute = rolled, seen in transverse sections of shoot; diameter of radical leaf, when conduplicate measured at about ⅓rd distance from ligule, margins to keel, choosing highest complete leaf of sterile shoot. Height of plant (culm) includes panicle; ± = more or less; leaf auricles are extensions of the base of the leaf-blade, sheath auricles are extensions of the free upper margins of the sheath, usually in the form of lobes appressed to the shoot within; c. = about.

Festuca L. (17, a).

Spikelets in a 1-sided panicle, pedicellate, 2 or more flowered, somewhat flattened laterally. Sterile glumes 2, usually keeled, the lower (G I) usually 1-nerved, the upper (G II) 3-nerved, shorter than the contiguous lemma (G IV). Lemmas ± lanceolate, awned or muticous, feebly keeled in upper half, 5-nerved.

Perennial, rhizomatous or caespitose, branches vegetative in their first year, flowering in their second; sheaths of radical leaves entire or split, of culm leaves split: laminae flat or conduplicate or convolute, ± costate about the nerves, "bulliform" cells ("motor-cells") often present in upper epidermis between costae.

Of the six sections distinguished by Hackel (9, p. 79) three are represented in the British Isles.

I. Ovinae. Laminae either all conduplicate or the culm ones ± plane, often biauriculate about the ligule ("sheath" and "blade" auricles); ligules short, truncate. Caryopsis ventrally deeply furrowed, furrow containing a hilum almost its length; lemma and pale tightly adherent.

II. Bovinae. Ligule short, truncate, no "blade" auricles, "sheath" auricles often falcate; laminae usually flat, vernation convolute. Lemmas with broad scarious margin in upper ¼-⅙. Styles subterminal. Furrow of caryopsis shallow, hilum linear nearly its length, husks adherent.

III. MONTANAE. Ligules truncate, no auricles. Laminae all flat, vernation convolute. Lemmas loosely involute in fruit, narrow scarious margin; ovary hispidulous apex, styles subterminal; caryopsis free or nearly so, hilum linear, about half its length, ventral furrow slight or absent.

Section OVINAE Fr. (4).

§1. INTRAVAGINALES.

All branches intravaginal with a somewhat elongated dorsal prophyll succeeded immediately by normal leaves. Leaves with laminae all similarly conduplicate, sheaths all split to the base, biauriculate about the ligules.

a. Laminae capillary or setaceous, 0.3-0.6 mm. diam.
  α. Lemmas muticous .... *F. tenuifolia.*
  β. Lemmas aristate .... *F. ovina.*
b. Laminae stouter, stiffer, 0.7-1.0 mm. diam.
  α. Laminae green or glaucescent, not pruinose ... *F. longifolia.*
  β. Whole plant distinctly pruinose, even when dried (the waxy-layer can be scratched with a needle) .... *F. glauca.*

Species 1. *F. tenuifolia* Sibth. (26, p. 44), 2n = 14, diploid.

Laminae 0.3-0.4 (-0.6) mm., ± cylindrical, 5-nerved, 3-costate, long and lax. Culms 40 cm. high, 2 nodes near base. Spikelets small, 4.5-6.0 (-7.0) mm. lg., elliptical, 3-8 flrs., lemma c. 3 mm. lg., apex acute, muticous or mucronulate, anthers 1.5-1.75 mm. lg.

Var. 1. *paludosa* (Gaud.) Howarth *comb. nov.* (6, p. 276). The typical species. Plant, including spikelets, glabrous.

Var. 2. *hirtula* (Hack.) Howarth (2c, p. 512). A fine pubescence on spikelets and lower leaves.

Grasslands of lowland heaths (sands and gravels) and at higher altitudes in rocky ground. Common. Proliferated forms of both vars. occur in mountainous districts.

Species 2. *F. ovina* L. (17b, p. 73), 2n = 14 (28, 42, 56)

Laminae 0.4-0.5 (-0.6) mm. diam., 5 (-7)-nerved, 3-costate, somewhat laterally compressed, distinctly keeled when dry, dark-green, grey-green or glaucescent (*not* pruinose), rarely quite glabrous. Culms 20-30 (-70) cm. high, 2-nodes, often roughish below panicle. Panicle ± contracted except at anthesis, varied length (2-12 cm.) usually 2-8 cm. Spikelets 4.5-8.0 mm. lg., 3-8-flrd. Lemma 3.5-5.0 mm. lg. awned, awn 1.0 mm. or more.

Var. 1. *genuina* Gren. & Godr (8, p. 570). The typical species. Common sheep's fescue grass of chalk downs and limestone grassland.

Var. 2. *hispidula* (Hack.) Richt. (21, p. 93). Lemmas hispid. Sheaths puberulous. Occurs with var. 1 but usually in more exposed situations.

Var. 3. *firmula* (Hack.) Richt. (21, p. 93). A more robust form with rather stouter (c. 0.6 mm.) leaves, more rigid, 7-nerved, 3-costate. Spikelets larger (6.0-7.5 mm.). Lemmas 4.0-5.0 mm., roughish backs. Rare.

Proliferated forms of all three vars. occur.

Species 3. *F. longifolia* Thuill. (29b, p. 50), 2n = 42 (hexaploid).

More robust than var. 3 above. Laminae 0.6-0.8 mm., 7-9-nerved, 3-costate, green or glaucescent, smooth or scabrous. Spikelets c. 8-0 mm. lg., 4-9 flrd. Lemmas 4.0-5.0 mm., awn 3.0 mm.

Var. 1. *genuina* (Godr.) Howarth (13, p. 34). The typical species: known to continental authors as "*F. duriuscula* L." Plant practically glabrous.

Forma *longiaristata* Hack. (9, p. 90). Awn longer than half lemma.

Forma *curvula* (Gaud.) How. (13, p. 34). Laminae rigid, curved, rough along the infolded margins.

Proliferated forms occur.

Var. 2. *villosa* (Schrad.) Howarth *comb. nov.* (24, p. 320). Spikelets ± villose.

Var. 3. *trachyphylla* (Hack.) Howarth (13, p. 35). Laminae distinctly rough. A more robust plant with larger panicle and spikelets. Rare.

It is doubtful if any of these forms are indigenous.

Species 4. *F. glauca* Lam. (16b, p. 459), 2n = 28 (tetraploid).

Entire plant with distinct waxy "bloom." Laminae stiff, ± cylindrical, smooth, 0.7 mm. or more diam., 7 (-9)-nerved. Spikelets—8 mm. lg., 4-7-flrd. Lemmas 5.5 mm. lg. awned.

Var. 1. *genuina* (Hack.) Howarth (13, p. 35). A robust plant—4 dm. high with stout leaves. Grown as an ornamental grass, naturalised in few localities.

Var. 2. *caesia* (Sm.) Richt. (21, p. 95). A smaller plant with thinner wiry leaves and shorter culms. In the type specimens the spikelets are about 6 mm. lg., lemmas c. 4.5 mm., awns c. 1.4 mm., anthers c. 2.4 mm. The type locality is on the heaths around Bury St Edmonds, but it occurs generally in Breckland. The plant similarly named by continental authors appears to be quite distinct.

§2. EXTRAVAGINALES.

Some or all of the branches extravaginal, i.e., breaking through the base of the subtending sheath, producing first a short prophyll followed by leaves showing transition to normal foliage leaves.

A. Ovary hispidulous at apex. Branches mostly intravaginal, their leaves capillary, culm leaves flat
F. heterophylla.

B. Ovary glabrous at apex.
  a. Extreme tip of laminae obtuse.
    α. Densely caespitose .... *F. commutata.*
    β. Loosely caespitose, extravaginal branches more numerous than intravaginal, ± creeping.
      1. Laminae all flat .... *F. rubra, planifolia.*
      2. Radical laminae setaceo-conduplicate, culm laminae flat .... *F. rubra, genuina.*
  b. Extreme tip of laminae pungent, leaves ± cylindrical, rigid. Spikelets large, pubescent *F. longifolia.*

Species 5. *F. heterophylla* Lam. (16a, p. 600), 2n = 42 (hexaploid).

Hairs present on apex of ovary. Laminae of vegetative shoots capillary, triangular in trans. sect. 3-costate, 3-nerved: of culm leaves broad and flat. Plant caespitose. Sheaths of radical leaves entire, of culm lea. split. Spikelets narrow. Lemmas awned, linear-lanceolate narrowing to an acute apex, usually rough about tip, awn about ½ length of lemma.

Shady places, woods; probably introduced.

Species 6. *F. rubra* L. (17b, p. 74).

Apex of ovary glabrous. Branches mostly extravaginal, ± erect or creeping. Radical leaves setacea-conduplicate (except var. *planifolia*), sheaths entire. Culm leaves flat, sheaths split.

I. Extravaginal branches at first horizontal, then turning up, horizontal portion of varying length, plants sub-caespitose or stoloniferous .... Subsp. *duriuscula.*
II. Extravaginal branches all ± erect, plant caespitose Subsp. *fallax.*

I. Subsp. DURIUSCULA Syme (28, p. 145).

Var. 1. *vulgaris* Gaud. (6, p. 285).

Plant sub-caespitose, stolons short. Rad. leaves c. 0.6 mm., 5-7-costate, 5-7-nerved, conduplicate, in t.s. elliptical when fresh, ± keeled when dry. Culm leaves flat. Pan.—18 cm. lg., lowest branches paired, unequal. Spikelets—1.0 cm. lg., 3-7-flrd., green or violet. Lemmas glabrous or rough about tips, c. 5.0 mm. lg., awn—2.0 cm. lg.

Shows considerable variation: numerous strains can be distinguished under cultivation.

Prefers friable, well-drained neutral or slightly alkaline soils. Widely distributed.

Var. 2. *megastachys* Gaud. (6, p. 287).

A more robust plant. Rad. leaves 1.0 mm. or more diam., 7-costate, 7-9-nerved. Spikelets—1.3 cm. lg., lemmas c. 6.0 mm. lg., awns—3 mm. lg.

Forma *littoralis* Hack. (31, p. 368) is a coastal form with longer stolons but with fewer spikelets per panicle, otherwise as var. 2.

A useful pasture grass, widely distributed on more fertile soils.

Var. 3. *tenuifolia* Howarth (10, p. 267).

Readily distinguished from var. 2 when in fresh condition by its dark, glaucous green leaves (not pruinose). Spikelets as in var. 2 but fewer per panicle and the latter more compact.

Coasts of S.W. England, especially Severn Estuary, on higher zones of salt marsh.

Var. 4. *glaucescens* (Hegets. and Heer) Richt. (21, p. 99).

Readily distinguished from vars. 1, 2, and 3 when living by its glaucescent (yellow-green) leaves. Panicle and spikelets as var. 1 or 2 but the latter possess a distinct wavy " bloom " visible also in the dried plant (it can be scratched with a needle). Lemmas typically rough about the tips and upper margins, green to dark purple.

Coasts, estuaries of W. and S. England, W. Scotland. Where the shore is flat and sandy but with some admixture of organic matter, it may form an extensive turf slightly above the *Glyceria* zone and distinguishable at a glance by its colour. " Cumberland " turf on the Solway Firth, " sea washed turf " used for lawns, etc.

Viviparous in the Hebrides.

Forma *pubescens* Howarth. New lemmas coarsely hairy as well as with a " bloom." Otherwise as above.

Few localities on coast of N.W. England—Morecambe Bay.

Var. 5. *pruinosa* (Hack.) Howarth (see Howarth, 12, p. 318).

Entire plant with distinct wavy " bloom," recognisable also on dried material. Plant light grey-green.

A few localities on our coasts.

Var. 6. *juncea* (Hack.) Richt. (21, p. 99).

Extensively creeping with long stolons, plant light grey-green as var. 5 but more robust and comparable with var. 2. Leaves—1.2 mm. diam.

Coastal sands, S.E. England.

Var. 7. *arenaria* (Osb.) Fr. (4a).

Extensively creeping by long stolons. Rad. leaves stiff, green (not pruinose), c. 1.0 mm. diam., not sharp pointed. Pan. and spikelets commonly as var. 1, sometimes larger, approaching state in var. 2. Lemmas densely hispid or villose (coarse hairs), occasionally also having a " bloom " (s. var. *Magnellii* R. Lit., 18, p. 3, Belgian coast).

Forms with sub-glabrous or almost glabrous lemmas occur (e.g. forma *glabrispicula* St Yves et R. Lit., 18, p. 24).

Frequent on the sheltered slopes of *Ammophila* dunes.

Var. 8. *oraria* (Dum.) Howarth *comb. nov.* (see 12, p. 329).

Chars. of var. 7 but much more robust and intermediate between it and Sp. 7. Rad. leaf 7-9-costate, 7-9-nerved, not rounded in t.s. and possessing separate bundles of sclerenchyma below the veins. Spikelets c. 13 mm. lg., lemmas c. 7.5 mm. lg., ± elliptical then tapering to an awned tip, densely villose.

A few localities on dunes, E. Coast, possibly introduced from Belgian coast whence Dumortier's type.

Var. 9. *dumetorum* (L.) Gaud. (6, p. 686), $2n = 42$ (hexaploid).

Chars. of var. 1 but lemmas shortly pubescent. On drier sandy and gravelly soils among brushwood and scrub, and occasionally on maritime sands, where it may be confused with var. 7. It is the subvar. *barbata* Hack. (9, p. 139). The hairs are not so coarse as in var. 7. Apparent long stolons on coastal sands are merely vegetative shoots whose internodes have elongated and the radical leaf-sheaths persist but become fibrous.

?Var. 10. *planifolia* Hack. (9, p. 140).

Rad. leaves 3.0 mm. broad, flat. Long stolons. Few localities.

II. Subsp. FALLAX (Thuill.) Howarth (12, p. 320).

Caespitose. Extravaginal branches fewer than intravaginal and ± erect.

Var. 11. *commutata* Gaud. (6, p. 287).

Cf. I. 1. More readily recognised in spring by its vegetative habit. Distinguished from *F. ovina* vars. by the entire sheath of the radical leaf, t.s. lamina, and ± flat culm leaf; from *F. heterophylla* by leaf chars. and glabrous ovary.

A constituent of *F. ovina* grassland in moister calcareous soils.

It is the " Chewing's Fescue " of New Zealand.

Var. 12. *barbata* (Hack.) Howarth (12, 320, given as a subvar. in error).

Spikelets pubescent.

Occasional, in drier situations.

Species 7. *F. juncifolia* St Am. (22, p. 40).

Extensively creeping. Leaves stout (-14 mm.), stiff, pungent apex, sub-cylindrical, t.s. 7-11-nerved, 7-9-costate, dorsal layer of sclerenchyma, costae with short, stiff hairs. Pan. large, spikelets large, lemmas 7.0 mm. or more lg., linear-lanceolate, tapering from below middle to a short awn, villose.

Forma *planifolia* Hack (2b, p. 38), leaves permanently flat.

On sand-dunes of E. and S. Coasts in several localities only. Distinct from *F. ruba* vars. *arenaria* and *oraria* in leaf characters and shape of lemma.

Section BOVINAE Fr.

Species 8. *F. elatior* L. (17b, p. 75).

I. Radical sheaths decaying into irregular dark-brown fibres. Paired basal branches of panicle with few spikelets (4-6 and 1-3 respectively). Spikelets narrow cylindrical, loose. Subsp. *F. pratensis.*

II. Radical sheaths not becoming fibrous. Paired basal branches of panicle multispiculate. Spikelets broader, dorsally flattened, compact. .... Subsp. *F. arundinacea.*

Subsp. I. PRATENSIS (Huds.) Hack. (9, p. 150), 2n = 14 (diploid).

Laminae of rad. leaves flaccid, costae ± distant (by 2-3 times their width), basal margin rough, rarely distinctly auriculate. Culm laminae distinctly auriculate. Spikelets loosely c. 7-8 flrd., 9-11 mm. lg., usually pale green. Lemmas indistinctly ribbed, upper margin broadly scarious.

Var. 1. *eu-pratensis* St Y. (23, p. 142 = var. *genuina* Hack., 9, p. 150).

Plant 30-70 cm. high. Lea. 3-5 mm. broad, dark green. Lemma muticous, obovate-lanceolate.

Subvar. α. *typica*, Hack. (9, p. 150). Spikelets c. 11 mm. lg.

Forma *mucronulata* Belli (1, p. 20). Lemma with slight mucron.

Forma *sub-aristata* Lit. (18, p. 6). Lemma with slight awn.

Forma *aristata* Jans. en Wacht. (15, p. 205). Lemma distinctly awned, awn c. ½ lemma.

Subvar. β. *pseudololiacea* (Fr.) Hack (9, p. 151).

Panicle linear, one basal pair each with one spikelet, remainder solitary. Distinguished from *F. loliacea* by presence of G I, but feeble and 1-nerved; radical sheath split, lamina convolute vernation.

Intermediates between α and β occur.

Damp meadows, pastures, grass verges.

Subsp. II. ARUNDINACEA (Schreb.) Hack. (9, p. 152), 2n = 42 (hexaploid).

Rad. laminae broad, ± stiff, multicostate, costae ± near (separated by not more than twice their width), base prolonged into 2 falcate auricles. Pan. large, paired basal branches each with more spikelets than in I. Spikelets more densely flrd. Lemmas lanceolate, usually distinctly nerved.

Var. 1. *genuina* Syme emend Hack. (28, p. 151, and 9, p. 154).

Plant 70-110 cm. tall. Laminae c. 4 or more mm. broad, flat, light-green or sub-glaucescent. Pan. c. 20 cm. lg., branches not closely contracted, lower pair ⅓ to ½ length of panicle, weaker with 3-8 spikelets. stronger multispiculate, spikelets c. 10 mm. lg. Lemmas lanceolate, apex muticous to aristate, faintly 3-5-nerved, carinate from middle to tip.

A facultative halophyte. Banks of tidal rivers.

Subvar. α. *vulgaris* Hack. (9, 153). Laminae 5-10 mm. broad. Spikelets 10-12 mm. lg., 4-6-flrd. Lemma c. 7 mm. lg.

(=*F. elatior β arundinacea* Syme, 28, p. 151).

Subvar. β. *strictior* Hack. (9, p. 154). Really a weaker state of α, frequently in the same habitat with it but in panicle chars. approximating to subsp. I and sometimes confused with it. Distinct, however, in its vegetative chars.

(=*F. elatior α genuina* Syme (28, p. 151) and *F. elatior* of some English botanists).

Subvar. f. *mediterranea* Hack. (9, p. 154). Leaves rather narrower, stiff, glaucescent, ± acute, convolute when dry. Pan. not so open as α and the branches with fewer spikelets. Lemmas distinctly awned, awn 2-3 mm. lg.

Occasional.

F. ELATIOR × LOLIUM PERENNE (=F. LOLIACEA Huds., 14, p. 38), 2n=21.

Loosely tufted. Rad. sheaths entire, young lea. conduplicate, adult flat, auriculate, many nerved, many costate. Pan. various—simple racemiform, spikelets solitary, or with basal branches. Lower spikelets semi-transverse, upper median (as in *Lolium*), 5-12 flrd., 12-15 mm. lg. G I rarely absent. G II to 8 mm. lg. Lemma 8-9 mm. lg., muticous, not clearly nerved. Pollen not fertile.

Occurs naturally where parents grow in proximity.

Species 9. *F. gigantea* (L.) Vill. (30, p. 110), 2n = 42 (hexaploid).

A tall, loosely tufted plant with large panicle. Leaves all similar, adult flat 5-15 mm. broad, bases prolonged into falcate dark brown auricles, multicostate, costae not prominent, widely separated. Pan. 10-40 cm. lg., lax. Paired basal branches naked ⅓-½ way, then 1-10 and 4-20 spikelets respectively. Spikelets pedicellate, 3-7 flrd. Lemma 7-9 mm. lg., lanceolate, acute, 5-ribbed, apex sub-entire or shortly 2-toothed and awn sub-apical, about twice length of lemma. Anthers c. 2 mm. lg.

(=*Bromus giganteus* L., 17b, p. 77). Woods and shady banks.

F. triflora Sm. (27, T. 1918) is a weak state. Spikelets 3-flrd. on a smaller, less open panicle.

Section MONTANAE Hack. (9, p. 195).

Species 10. *F. sylvatica* (Poll.) Vill. (30, p. 105), 2n = 42 (hexaploid).

Densely caespitose. Plant 70-110 cm. tall. All sheaths split, persistent without disintegrating into fibres. Ligules short, truncate, 1-3 mm. lg., margins ciliate. Branches at first apogeotropic bearing 4-5 sheathing scale leaves, then normal leaves. Laminae 6-14 mm. broad, adult flat, dark green, many-nerved, many-costate; upper surface rough, lower smooth. Spikelets usually 3-flrd., 6-7 mm. lg. Glumes 1-nerved. Lemma subulate, ± acute, keel prickly. Caryopsis free from husk, almost or quite flat.

Woods. Few localities.

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ABSTRACTS FROM LITERATURE

Thanks are due to H. A. Hyde, J. M. Lambert, F. A. Sowter, A. E. Wade, A. J. Wilmott and D. P. Young for their help.

Note to Contributors: It would be a great convenience to the Editors if contributors would send in their Abstracts, and any necessary References for the Bibliography, on slips of uniform size, the size desired being 8 inches by 5 inches, the long edge to be treated as the top of the page. A separate slip for each item permits the easy sorting of the MS. without the transcription which is otherwise too often necessary in the preparation of copy for the printer. The uniform slips can be easily filed and will be available for future reference, thus enabling the Editors to avoid repetition and to make helpful references to previous notes.—Ed.

(A) TOPOGRAPHICAL

3, South Devon.—S. C. Paterson (1946: *Trans. Torquay N.H. Soc.*, *9*, 119-124) gives " Notes on Four Years' Botanical work in South Devon. —[Wa.]

3, 4, Devonshire.—Day and Brokenshire (1945: 57-67) give the "Thirty-seventh Report on the Botany of Devon." The Report enumerates the records of flowering plants and cryptogams additional to those in *Flora of Devon*.—[Wa.]

4, N. Devon; Combe Martin.—Pugsley, H. W. (1945: *Trans. Devon Assoc.*, *78*, 193-206) gives a list of plants from the parishes of Combe Martin and Berrynarbor, mostly observed by himself, and which were not included for the area in Martin & Fraser, 1939: *Flora of Devon*.

5, 6, Somerset.—The Report of the Botanical Section in the *Proceedings of the Somersetshire Archaeological and Natural History Society*, *91*, 105-108, 1946, gives a list of the more important records made during 1945.—[Wa.]

7, 8, Wiltshire.—J. D. Grose (1946: Wiltshire Plant Notes; *Wilts. Arch. and N.H. Mag.*, *51*, 247-255) gives a large number of records of which *Arum italicum* and *Teucrium Botrys* are new to the county. Some attention has been given to the colour forms of common plants. (See *Plant Records*).—[Wa.]

7, 8, Wiltshire.—The *Report for 1946 of the Marlborough College Natural History Society* contains (pp. 16-18) its usual " Flower List " including phenological data. The Society adds *Oenothera Lamarckiana*, " *Eryngium maritimum* " from Clyffe Pypard churchyard, and *Potamogeton praelongus* (all v.-c. 7) to the Marlborough list, and *Vicia lutea* (7), *Valerianella eriocarpa* (8), *Coeloglossum viride* × *Orchis Fuchsii* (8), *Orchis pardalina* (7), and *Bromus Thominii* (7) have been contributed by J. D. Grose, the last four new to Wiltshire. A revised edition of the Handlist of Flowering Plants of the Marlborough District is promised for the next Report.—[Wi.]

9, Dorsetshire.—A. E. A. Dunston (1945; 1946) gives an account of the roses of the Isle of Purbeck. Several varieties and forms are recorded for the first time.—[Wa.]

14, East Sussex.—*The Hastings and East Sussex Naturalist*, *7*, 35-36, 1946, contains a few records from several contributors.

14, 16, East Sussex and West Kent.—1946: F. Rose; The Vegetation of the Weald with special reference to the Tunbridge Wells district (*S.E. Nat. and Antiq.*, *51*, 32-37), gives a general account of the flora of the various geological formations exposed in the area, with a note on the different geographical types of plants occurring in the area.

21 (etc.), London.—Lousley, J. E. (1946) brings together many interesting records for the London area, some of which are interesting survivals and others novelties mentioned in *Plant Records*. Additions to the flora of bombed sites are also given.—[Wi.]

18, South Essex.—G. Lister (1946: *Essex Nat.*, *27*, 293-296) gives "Additions to the List of Flowering Plants found in the Bushwood area of the Wanstead Park District since 1941." The presence of a barrage balloon site during the war and a much used underground shelter has resulted in the introduction of a number of plants foreign to the Forest.—[Wa.]

27 & 28, Norfolk.—Ellis, E. A. (1945: *Trans. Norf. Norw. Nat. Soc.*, *16*, 172-3) has compiled a list of plant notes from Norfolk for 1945, and gives habitats for the following:—*Camelina sativa* Crantz; *Trifolium resupinatum* L. (apparently a new-comer to Norfolk and probably introduced with farm seed); *Lotus tenuis* W. & K.; *Poterium officinale* A. Gray; *Pyrola minor* L. and *P. rotundifolia* L.; *Herniaria hirsuta* L. (probably another recently introduced species); *Scrophularia alata* Gilib.; *Aristolochia clematitis* L.; and *Cuscuta trifolii* Bab. on red clover.—[J.M.L.]

28, W. Norfolk.—Petch, C. P. (1945: *Trans. Norf. Norw. Nat. Soc.*, *17*, 106-9) gives a short account of vegetational changes accompanying reclamation of land along the eastern shores of the Wash.—[D.P.Y.]

34, 6, West Gloucestershire and North Somerset.—Sandwith, Cecil I. (1946) reports on the progress of floristic botany in the Bristol district.

39, Staffordshire.—E. S. Edees (1946: *Trans. North Staffs. Field Club*, 1945-6) gives many records of local interest; a few are given in Plant Records.

43, Radnorshire.—Wade, A. E., and Webb, J. A. (1945: *N.W. Nat.*, *20*, 156-160) contribute a list of records of plants, many of which have not been previously recorded for the county.

49, Caernarvonshire.—Wilson, A. (1946: *N.W. Nat.*, *21*, 202-223, Map and 2 plates) contributes a paper on the Flora of a Portion of North-East Caernarvonshire. It is compiled from the author's notes made between 1924 and 1946 together with records found in John William's *Faunula Grustensis*, Griffiths' *Flora of Anglesey and Carnarvonshire* and Leighton's *British Lichen Flora*. The area surveyed is bounded on the east by the River Conway from Conway to Bettws-y-Coed and on the west by the summit ridges of the Carnedd Llewelyn range of mountains. There are notes on the climate, the floral features and some altitudinal records of plants. The list of species ends with the *Valerianaceae* and is to be continued.—[F.A.S.]

57, DERBYSHIRE.—Hollick, K. M. (1946: *Derbysh. Arch. Nat. Hist. Soc. Jnl.*, 136-143) gives collected field notes and records of plants seen in 1946.

59, SOUTH LANCASHIRE.—Gresswell, R. Kay (1946: *Rep. Southport Sci. Soc.*, *5*, 12-17) publishes a list of " Interesting Plants found within the County Borough of Southport, 1936-1938" compiled from notes made by W. Waddington.—[Wa.]

61-65, YORKSHIRE.—Sledge, W. A. (1946: Botanical Records Committee Report; *Yorkshire Naturalists Union*: Annual Report, 1945: *The Naturalist*, 816, 26-28) gives new vice-county records for 61, 63, and 65 and new locality records for 61, 62, 63, 64, and 65.—[F.A.S.]

(B) TAXONOMY AND CLASSIFICATION

TURRILL, W. B. (1946: The ecotype concept—A consideration with appreciation and criticism, especially of recent trends; *New Phytol.*, *45*, 34-43) discusses Turesson's classificatory units which are based mainly on degrees of inter-fertility of the groups concerned (as determined often by artificial experiment) and concludes that taxonomy must give greater weight to the results of the ecological and geographical barriers existing in nature.—[H.A.H.]

(D) GENETICS

NUTMAN, DR P. S. (1946: Genetical factors concerned in the symbiosis of clover and nodule bacteria: *Nature*, 157, 463-465) selected plants of red clover (*Trifolium pratense*) according to their modes of behaviour after inoculation with a pure line strain of bacteria and investigated the inheritance of the said criteria. He found that variations in respect of several criteria were associated with genetic differences in the clover plant itself. Two factors viz. those producing complete resistance to infection and those that alter the effectivity of the plant response (i.e. the degree to which the plants are able to obtain their nitrogen supply from the nodules alone) show strong dominance.—[H.A.H.]

(F) BIOLOGY AND MORPHOLOGY

VOIGT, G. K. W. (1945: *Trans. Norf. Norw. Nat. Soc.*, *16*, 169-71) notes the preservation of chlorophyll " islands " in dying leaves contaminated by birds' droppings, and reviews briefly earlier work on the preservation of chlorophyll in autumnal leaves by the action of leaf-mining insect larvae and parasitic fungi.—[D.P.Y.]

PERCIVAL, M. S. (1946: Observations on the flowering and nectar secretion of *Rubus fruticosus* (agg.); *New Phytol.*, *45*, 111-123) observed the biology and nectar secretion of flowers of *Rubus fruticosus*;

rate of cane sugar secretion in individual flowers was found to be correlated with floral development and other factors and to show a diurnal rhythm, but was not obviously affected by weather.—[H.A.H.]

Hyde, H. A., & Williams, D. A. (1946: Studies in Atmospheric Pollen III. *New Phytol.*, *45*, pp. 271-277). Simultaneous observations were made on flowering and atmospheric pollen concentration (as measured by the catch on slides exposed continuously and changed 2-hourly) in a dense stand of *Plantago lanceolata* and related to the weather conditions experienced. Normally anthesis took place at 06.00 hr., pollen was released immediately and the atmospheric pollen concentration rose and fell correspondingly. Flowering was delayed or almost completely inhibited by cold weather but was unaffected by duration of bright sunshine recently experienced. The pollen productivity of individual flowers and heads and of unit area of the stand was determined and it was concluded that a very high proportion becomes air borne.—[H.A.H.]

Abraham, E. P., Crowfoot, D. M., Joseph, A. E., Osborn, E. M. (1946: An antibacterial substance from *Arctium minus* and *Onopordon tauricum*; *Nature*, *158*, 744) have isolated an antibacterial substance from *Arctium minus* Bernh. and have also obtained the same substance from first year plants of *Onopordon tauricum* Willd., a southern European species belonging to the same section ot Compositae as *Arctium*.—[H.A.H.]

Harris, T. M. (1946: *New Phytol.*, *45*, 50-55) observed that certain plants, especially mosses and *Cladonia*, were poisoned by zinc from galvanized wire netting used to enclose experimental quadrats at 500 m. on Cader Idris, North Wales. He observed that rain water used for various plants in a greenhouse contained more than enough zinc to kill certain plants in water cultures and suggests that this may explain the observed difficulty in cultivating wild plants from mountain and other habitats with the minimum of nutrients.—[H.A.H.]

Albino Flowers.—Armitage, E. (1945: *J. Roy. Hort. Soc.*, *70*, 146, 362) lists numerous species in which albinism has been observed. Some yellow flowers are occasionally cream- or lemon-coloured, e.g., *Ranunculus Ficaria*, *R. acris*, *Sonchus oleraceus*, *S. asper*, *Tragopogon pratensis*, *Leontodon autumnalis*, and *Lapsana communis*; a specimen of the last was also seen with pale silvery straw-coloured fruiting involucres on light green stems. *Dactylis glomerata* sometimes occurs without purple coloration in the glumes and anthers.—[D.P.Y.]

(G) ECOLOGY

(For regional papers see " Topographical " section)

Bombed Areas.—Debray and Senay (1946: La flore des ruines du Havre; *Bull. Soc. bot. Fr.*, *92* (*1945*), 229-235) examined in June, September and October 1945 the flora of *l'île St.-François*, a district of Le Havre where three-quarters of the buildings had been totally or partially destroyed in September 1944. The first part of the paper deals with the floristics of 8 localities, with notes on the edaphic conditions, and, in two instances (with the longest lists) statements of the extent of earlier damage in 1940, and in another, mention of bombing in 1942 or 1943. Most of the species which occur most frequently in these lists are those we are familiar with on British bombed sites, and *Erigeron canadense* L., *Epilobium angustifolium* L., *Buddleja* (" probablement *B. variabilis* Hemsley "), *Tussilago Farfara* L., *Senecio viscosus* L., *Solanum Lycopersicum* L., *Alopecurus agrestis* L., *Sisymbrium orientale* L. (var. *stenocarpus* Ry.), *Erysimum Cheiranthoides* L., *Salix Caprea* L. and *S. atrocinerea* Brot., are amongst the species included. "*Pteris aquilina* L." is given as present but apparently not at that time plentiful. The vegetation evolved through very much the same stages according to the stabilisation of the soil as have been familiar to workers in this country, but Debray and Senay make the important observation that the very diverse chemical nature of the soil appeared to have hardly any influence on the floristics. In spite of the dry summer of 1945 willows became established. The introductions included *Chenopodium Vulvaria* L., *Plantago altissima* L., and *Erigeron crispus* Pourr., of which the last two are new and the first almost new to the district. Tomato is known to be an " endoanthropochore " and it is suggested that this explains its mode of introduction [but from the exposed positions in which it occurs in the City of London there is likely to be some additional explanation.—J.E.L.]. The paper concludes with an appreciation of the brilliance of the flowers in contrast with their desolate surroundings.—J. E. LOUSLEY.

By way of comment it may be pointed out that this list from France is of extreme interest in comparison with the flora of bombed sites in other countries. Thus of the 11 most abundant species found on the ruins of Hamburg according to a list supplied to me by Herr Schriever and including *Poa annua*, *P. trivialis*, *Lolium perenne*, *Chenopodium album*, *Stellaria media*, *Capsella bursa-pastoris*, *Epilobium angustifolium*, *Erigeron canadensis*, *Tussilago Farfara*, *Senecio vulgaris* and *S. viscosus*, all are found at Le Havre and also on nearly all the bombed sites of British towns as noted in my own lists or those of correspondents. Comparison of all these lists clearly indicates that the special ecological conditions provided by the débris produces a well-defined flora of a type which is remarkably uniform. From my own work in London supported by experiments with horse-droppings it seems that the horse has been instrumental in introducing a much larger number of species than hitherto supposed. Debray and Senay's paper includes a considerable number of plants associated with farmyards and known to germinate from seed which has passed through the horse.—J.E.L.)

OAK WOODS.—The Presidential Address by E. Wyllie Fenton to the Botanical Society of Edinburgh on " Some Factors affecting the natural regeneration of Oak in certain parts of south-east Scotland " has been published (1945: *Trans. Bot. Soc. Edin.*, *34*, 214-232).

CHALK.—Locket, G. H. (1946: *Journ. Ecol.*, *33*, 205-209) contributes "Observations on the Colonisation of Bare Chalk." The observations were made between 1933 and 1943 on the floor and slopes of an oblong chalk pit, 150 × 100 m., at Harefield, Middlesex, which was abandoned in 1929. Full lists of the species observed are given with a record of the fluctuation in frequency. Amongst woody plants on the floor *Salix Caprea* and *S. atrocinerea* with *Betula alba* were the precursors, followed by *Acer Pseudoplatanus*, *Crataegus monogyna*, *Fraxinus excelsior* and *Quercus Robur*. *Salix* spp. and *Betula* spread and grew rapidly on the screes. The domination of the whole floor by *Melilotus officinalis* in 1933 followed by fluctuating frequency and almost total disappearance by 1942 is commented upon.—[Wa.]

WOODLAND COMMUNITIES.—Blackman, G. E., & Rutter, A. J. (1946: Physiological and Ecological Studies in the Analysis of Plant Environment. I. The Light Factor and the Distribution of the Bluebell (*Scilla non-scripta*) in Woodland Communities; *Ann. Bot.*, N.S. *10*, No. 40, p. 361-390) have studied the density of bluebell (*Scilla non-scripta*) distribution in larch, beech and mixed deciduous and beech woods respectively and have made corresponding observations on light intensity. They show by appropriate statistical means that in the larch wood the shade factor accounted for above one-third of the variations in the plant's distribution; in a beech wood half of the density fluctuations could be expressed in terms of light intensity ruling between 31st March and 30th June; in a mixed deciduous wood with an understorey of scattered hollies the corresponding figure was three-quarters; the absence or scarcity of bluebell beneath the hollies was solely due to the deeper shade. The authors conclude that bluebell is intolerant of deep shade and that in most closed woodland communities light is the main environmental factor controlling distribution. In spite of its prevalence in woodland bluebell is not an obligate shade plant: open woodland nevertheless is its most favourable habitat because of the absence of unfavourable factors such as trampling by animals, waterlogging and a very shallow depth of soil.—[H.A.H.]

CANADIAN FOREST.—A second paper by Pierre Dansereau on the Laurentian Maple Forest (dominated by *Acer Saccharophorum*), dealing with the various successions and their plant indicators, appears as no. 60 of the *Contributions de l'Institut Botanique de l'Université de Montréal* (1946: 235-291). Few British species figure in the lists, but the methods of presenting the results in diagrams and tables are interesting. The climax is reached by five main lines of development. On some lines a subclimax may result from the checking of further development by topographic or micro-climatic influences. The modifications due to the intervention of man are also described. The French text is followed by a short English summary and a bibliography of 55 entries.—[Wi.]

(H) DISTRIBUTION

(b) HISTORY OF THE BRITISH AND NEIGHBOURING FLORAS

ORIGIN AND DISTRIBUTION OF BRITISH FLORA.—Prof. J. R. Matthews, in the Masters Memorial Lectures (1946: *J. Roy. Hort. Soc.*, 71, 215-239, 259-273), discusses the history of our native vegetation. Such discussion must be largely devoted to a consideration of the geographical sources of the species, since their evolutionary history is little known; most British natives, however, certainly date back to a remote past. The emergence in Pliocene times of a flora in the British area, which eventually comprised a large proportion of the present-day species, is looked upon as arising from a southward migration, consequent upon the cooling of the climate in the higher latitudes. Its later history was complicated by the four periods of glaciation during Pleistocene times, the first 600,000 years ago, the last ending about 15,000 years ago. Some of these plants from more northern regions may have reached the British area prior to the first glaciation, and palæobotanical evidence suggests an interchange during Pleistocene times between the circumpolar and S. European floras. However, the development of the Scandinavian ice-sheet appears to have blocked the southward migration of many Arctic species. Prof. Matthews inclines to the view that an important part of our modern flora survived through the glacial periods, providing a stock for later recolonisation. The vegetation during the ice age must have been dynamic, keeping pace with the alternating glaciation and more genial climatic conditions.

The general character and existing distribution of British vegetation has been attained since the last glacial phase, by immigration (or re-immigration) from the Continent. Whether any trees survived the last glacial epoch is doubtful, but in post-glacial times trees spread over large areas of the country, bringing corresponding changes in the rest of the flora. The main post-glacial changes have probably been brought about principally by changes in climate, but also by topographic change and natural ecological successions. Ecological study of existing plant communities is of importance here, as it casts light upon the conditions under which similar communities grew in earlier times.

The paths by which various plants reached Britain can sometimes be traced from their centres of distribution. The remainder of the lecture is devoted to a survey of various types of plant association and the origin of their more important members.

Man has wrought a considerable influence on vegetation in recent times, and although remarkably few species have disappeared owing to his interference with the native flora, an enormous number have been introduced. Probably most of our agrestal weeds have been derived from the semi-desert communities of S. Europe, the Mediterranean, and the Orient, although a few (*Stellaria media*, *Lapsana communis*, *Polygonum aviculare*, *Rumex Acetosella*) were members of our preglacial flora. These semi-desert plants also establish themselves well on sand-dunes. A small group of our maritime and littoral plants are circumpolar, but the majority have come from S. or S.W. Europe. Many of our aquatics are boreal and known from pre-, inter-, and post-glacial deposits, others came from S. or W. Europe. *Eriocaulon, Lobelia Dortmanna*, and *Naias flexilis* are amphi-Atlantic and may have come from the American side. Our marsh plants have a preponderance of boreal species which may have survived from pre-glacial times, and also include southern types which probably have not done so. The plants of British grasslands are largely Eurasian; in particular, the " steppe flora " of the Brecklands and other dry soil communities are derived from central Europe and probably arrived in the Boreal period of post-glacial times. Of our heath and moorland vegetation, many plants, especially *Ericae*, are characteristically W. or S.W. European Atlantic species, but an important part is boreal; the latter may have migrated south before the advancing ice-sheet, but it is doubtful if the Atlantic plants had reached Britain in Pleistocene times. Most British woodland is of the N.W. European deciduous forest type, but the pine and birch forests (and heathy oak-woods) of the Highlands belong to the N. European coniferous forest belt. The ground flora of the latter is boreal; our numerous other woodland plants are in the majority Eurasian—of varied origin, but some are Asiatic, others southern—with some Continental and Oceanic European types. A few of the members of our alpine flora, which reach their southern limit in Scotland, are purely Arctic, but the majority are Arctic-alpine and fairly widely distributed; a few are purely Alpine and do not occur in the Arctic, although most are found in Scandinavia. Many Alpine and Arctic plants are centred on N.E. Asia; they probably spread by two lines of migration, one circumpolar, the other via the Caucasus and European Alps, and some or all of the Arctic-alpine type may have travelled northwards to the Arctic via the latter route.

Summing up, in our flora are over 300 species of the S. European element, 350 boreal species, and 800 of more general distribution. Probably the majority of the boreal species survived the glacial period in Britain, so that in this era our flora was as rich as that of Greenland to-day.—[D.P.Y.]

PRAEGER, R. LLOYD. (1946: The Irish Sea as a plant barrier; *New Phytol.*, *45*, pp. 280-1). The Irish flowering plants offer no direct evidence of actual present trans-marine migrational movement but certain ferns appear to be in process of establishing themselves in Ireland, as the result of colonization by air-borne spores carried from Britain. Thus about twenty to twenty-five plants of *Cryptogramme crispa*, mostly " isolated starvelings," have been seen in 150 years and *Dryopteris Phegopteris* has been recorded—in each case as a single plant or clump—from five counties; both these species have been observed in artificial and therefore atypical habitats such as roadsides. *Dryopteris Robertiana* was found a few years ago in Ireland (forming strong colonies in limestone crevices in Co. Mayo): such ground covers hundreds of square miles not far away but the species has as yet been seen only in the one locality.—[H.A.H.]

ALIEN PLANTS IN BRITAIN. Dallman, A. A. (1946: *N.W. Nat.*, *21*, 36-43, 2 pl.) commences a series of papers on alien plants and the first one includes the following species:—*Geranium Endressi* J. Gay and *Saxifraga Cymbalaria* L. var. *Huetiana* (Boiss.) Engl. et Irmsch. A comprehensive bibliography is appended.—[S.]. See Plant Notes.—ED.

BLACKBURN, K. B. (1946: On a peat from the island of Barra, Outer Hebrides. Data for the study of post-glacial history; *New Phytol.* *45*, 44-49). Pollen analyses of a 4 ft. blanket peat from the island of Barra, Outer Hebrides, show that peat formation began near the beginning of the Boreal period and has continued almost to the present day. The relative proportions of non-tree and tree pollens and spores suggest that at no time during the period concerned was there a very extensive forest cover on the island.—[H.A.H.]

HARRISON, J. W. HESLOP, and BLACKBURN, K. B. (1946: *New Phytol.*, *45*, 124-131) pollen-analysed peat from a nut of *Trapa natans* washed up on the shores of a brackish loch on South Uist, Outer Hebrides; comparison of the counts with those obtained from peat profiles situated 1 mile south-east and 2 miles north-east respectively suggest that in the Atlantic period *Trapa* grew in the lowlands to the west of the island.—[H.A.H.]

VON POST, LENNART (1946: The prospect for pollen analysis in the study of the earth's climatic history; *New Phytol.*, *45*, 193-217) describes the results of applying pollen statistics during the past 30 years to the study of peat bogs and shows that revertence (the re-establishment of what he calls *terminokratic* elements in vegetation after an interval dominated by warmth-loving *mediokratic* ones) has occurred in both northern and southern hemispheres during the postglacial period. We are travelling toward a new ice age.—[H.A.H.]

(K) BIOGRAPHY

BERRY, ELIHU (1812-1869). An account of this little-known Yorkshire botanist, his publications and records, is given by Bayford, E. G. (1946: *Naturalist*, 113-114).

WILLIAM CURTIS (1746-1799). Lousley, J. E. (1946: *J. Roy. Hort. Soc.*, *71*, 98-100, 124-130) gives an account of Curtis's life and work.—[D.P.Y.] See also *B.E.C. 1945 Rep.*, 126, 1947.

(M) MISCELLANEOUS

LOCAL PLANT NAMES. The following names not mentioned by Britten and Holland, in their *Dictionary of English Plant Names*, are given by A. W. Boyd (1946: *N.W. Nat.*, *20*, 262):—

Polygonum Persicaria L.; "Red-Knee," "Red Legs" (or "Red Leg") in Cheshire. Also "Red-Nest" in Lancs. (Formby). See *N.W. Nat.*, *19*, 64 and 301.

Senecio Jacobaea L.; "Flea-Nut"; "Flea-Nits" and "Keedle-Dock" in Cheshire.

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DAY, F. M., and BROKENSHIRE, F. A.; 1945: Thirty-seventh Report on the Botany of Devon; *Rep. and Trans. Devon. Assoc.*, *77*, 57-67.

DUNSTON, A. E. A.; 1945: Some Notes on the Natural History of the Isle of Purbeck, Dorset (v.-c. 9), II. Notes on the Rosae; *Proc. Dorset N.H. and Arch. Soc.*, *66*, 147-157.

—— 1946; Some Notes on the Natural History of the Isle of Purbeck, Dorset (v.-c. 9), II. Rosae (continued), *ibid.*, 143-144.

LOUSLEY, J. E.; 1946: Botanical Records for 1945; *Lond. Nat. for 1945*, 13-15.

SANDWITH, CECIL I.; 1946; Bristol Botany in 1945; *Proc. Bristol N.S.*, *27*, 70-78.

REPRINTS FOR SALE (continued).

Rubus, stability in. Rilstone (1945)	1	0
Corrected names of Roses distributed through the B.E.C. Wolley-Dod (1924)	1	0
Crataegus, Batko. Dandy (1943-4)	3	0
Schkuhria in B.P.L. Sandwith 1939-40)	0	6
Senecio londinensis. Lousley (1943-4)	1	0
British Centaureas of the nigra group. Britton (1921)	2	0
Centaurea Scabiosa L. Britton (1922)	2	0
Taraxacum vulgare (Lam). Schrank. Druce (1919)	1	0
Qu'est ce que le Solanum Dillenii? Thellung (1926)	0	6
Solanum chenopodioides. Wilmott (1943-4)	0	6
Cuscuta europaea var. nefrens. Verdcourt (1945)	0	6
Euphrasia atroviolacea and E. variabilis. Druce and Lumb (1923)	0	6
Rhinanthus. Wilmott (1939-40)	2	0
Menthae Briquetianae. Fraser (1924)	2	6
Menthae Britannicae. Fraser (1926)	2	0
Notes on Mentha. Fraser (1930)	1	0
The Distribution of Thymus in Britain. Ronniger (1927)	1	0
Teratological Forms of Plantago lanceolata. Flintoff (1930)	0	6
Rumex II. Lousley (1941-2)	2	0
Salix List in L.C. Fraser (1925)	1	0
British Orchids in 1930. Hall (1930)	1	6
Orchis maculata and O. Fuchsii. Druce (1923)	2	0
British Marsh Orchids. Druce (1919)	2	6
Orchis pardalina. Wilmott (1943-4)	0	6
Orchis latifolia, Vermeulen, Pugsley, Wilmott (1945)	1	6
Ornithogalum umbellatum. Britton (1941-2)	1	0
N.W. European Juncus alpinus forms. Lindquist (1930)	2	6
Potamogeton Drucei Fryer in Fryer's correspondence. Druce (1919)	0	6
Carex microglochin. Druce (1923; also Tr. B. S. Edinb.)	0	6
Carex flava and C. muricata. Nelmes (1945).	1	0
Avena strigosa. Marquand (1921)	1	0

COLLECTED NOTES

Druce (1918).	Papaver Rhoeas, Centaurium scilloides, Ajuga genevensis, Cystopteris . . . Dickeana	1	0
—— (1925).	Silene italica, Tiliaea aquatica, Solidago cambrica Euphrasia septentrionalis, Orchis latifolia, Poa trivialis var. septentrionalis	0	6
—— (1923).	Rumex arifolius, Senecio erraticus	0	6
—— (1924).	Galium debile, New Taraxaca, Menthae	0	6
—— (1926).	New Alchemillas, New Hieracia, New Taraxaca	0	6

MISCELLANEOUS

Evolution and Classification of Flowering Plants. Parkin (1926)	0	6
Bombed Sites, London. Lousley (1941-2)	2	0
Bombed Sites, London. Lousley (1943-4)	2	0

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OF THE

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BY

THE DISTRIBUTOR,

CATHERINE ROB, F.L.S.

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" Genera of British Plants," by H. Gilbert Carter. Would anyone knowing of a copy for sale, please send details on a post card to the Hon. General Secretary.

REPORT OF THE DISTRIBUTOR FOR 1946

The number of sheets received for distribution is considerably lower than last year: this may be to some extent the result of the bad weather; the number of contributors is the same, eighteen. Five gatherings (61 sheets) which were not sent out in 1938 are included in this distribution. These have been to referees for re-examination and the revised notes appear in this Report. More than 500 sheets of duplicates from various sources are also included in the distribution, but even with these the total number of sheets is disappointingly small.

Some of the specimens sent in were of poorer quality than in former years and some labels were far from adequate, there being no room for the official stamp on several. Mr Wallace's gathering of *Hydrilla* from India has been greatly appreciated, also the hybrid *Junci*, and *Carex vulpina* from Oxon.

The thanks of members are due to all who have contributed notes for this Report and to the following referees who have kindly examined specimens and supplied notes: A. H. G. Alston, G. M. Ash, R. W. Butcher, J. S. L. Gilmour, W. O. Howarth, R. Melville, H. W. Pugsley, P. W. Richards, W. A. Sledge, W. B. Turrill, D. H. Valentine, A. E. Wade, W. C. R. Watson, and A. J. Wilmott.

CATHERINE ROB.

Catton, Thirsk,
April 14, 1947.

Lotus tenuis Waldst. et. Kit. ex Willd. (Ref. No. 5197.) 8, S. Wilts.; cornfield near Bulford, Aug. 14th, 1946. Branches quite decumbent, sometimes reaching 125 cm. in length.—J. D. GROSE.

Vicia lutea L. (Ref. No. 5259.) 7, N. Wilts.; Chalk Down, Rudge, Froxfield, Sept. 22nd, 1946.—J. D. GROSE.

Rubus fissus Lindl. ["*Rubus* ——."] 70, Cumberland; Blaithwaite near Wigton, Aug. 11th, 1946. Fruits dark red when ripe, maturing early.—Coll. J. PARKIN; comm. CARLISLE MUSEUM HERBARIUM. "The specimens on two sheets are mixed. (1) The three panicles on one sheet are *R. fissus* Lindl. (=*Rogersii* Lint., not *fissus* of Rogers.) This belongs to the *Suberecti*. (2) The two stem pieces on the other sheet are *Rubus polyanthemos* Lindeb., which belongs to *Silvatici*."—WM. WATSON.

Rubus leucandrus Focke. 16, W. Kent; waste ground, Bickley, June 30th and August 5th, 1946. Petals white, stamens white, exceeding the greenish styles. This species has not before been distributed, I believe. The bush was in its third year of growth. The leaflets grew strongly buckled and in consequence they show a fold when they are pressed. The "geniculation" at the apex of the petiole and of the petiolules will also be noticed. Both these peculiarities are present in other specimens of *R. leucandrus* which I obtained in West Sussex.—WM. WATSON.

Rubus Schmidelyanus Sudre. 14, E. Sussex; by the fingerpost, Hindley, Ashdown Forest, July 9th, 1946. Petals pinkish, stamens white, slightly exceeding the greenish styles, sepals patent to loosely erect. This species has not before been distributed, I believe. I have seen it also in Surrey, Beds., and Oxon. Abroad it grows in N. France, and Belgium, and is scattered through West Central Europe.—WM. WATSON.

Rubus radula Weihe; det. Wm. Watson. 62, N.E. Yorks.; shrubbery, Catton Hall, July 7th, 1945.—C. M. ROB.

Rubus foliolatus Lef. & Muell. 16, W. Kent; a quarter of a mile north of Kent Hatch, Westerham, just inside Kent, July 9th, 1946. Petals pink, stamens white, slightly exceeding the reddish-based styles, sepals clasping, fruit deliciously flavoured. This species also has, I believe, not before been distributed. It grows scattered on the higher parts of the Lower Greensand range south of Westerham. Abroad it has been found in Belgium and North France.—WM. WATSON.

Fragaria chiloensis Duchesne. (Ref. No. 4638.) 62, N.E. Yorks.; railway embankment, near Catton, May 19th, 1946.—C. M. ROB. "Yes."—D. H. VALENTINE.

Alchemilla xanthochlora Rothm., det. A. J. WILMOTT. [" *Alchemilla* ——."] (Ref. No. 4651.) 62, N.E. Yorks.; railway embankment, near bridge over Swale, Catton, June 6th, 1946.—C. M. ROB. " = *A. pratensis* auct., non Schmidt.—A. J. WILMOTT.

Alchemilla vestita (Buser) Raunk. [" *Alchemilla* ——."] (Ref. No. 4630.) 62, N.E. Yorks.; in short turf near beck at Kepwick Mill. May 11th, 1946.—C. M. ROB, det. A. J. WILMOTT.

Myriophyllum verticillatum L. (Ref. No. 4680163.) 22, Berks.: stagnant pool, Kennington, August 16th, 1946. Some of these specimens would pass as " var. *pectinatum* Wallr.," but as shown elsewhere (J. P. M. Brenan and J. F. G. Chapple, " The Australian *Myriophyllum verrucosum* Lindley in Great Britain ") this is considered to be merely a state induced by conditions of habitat.—J. F. G. CHAPPLE.

Myriophyllum verrucosum Lindley. (Ref. No. 468119.) 30, Beds.: stagnant pool, disused gravel pit, near Eaton Socon.—Coll. J. P. M. BRENAN and J. F. G. CHAPPLE, comm. J.F.G.C. " For an account of this plant see J. P. M. BRENAN and J. F. G. CHAPPLE, The Australian *Myriophyllum verrucosum* Lindley in Britain "—to be published in the new *Journal* of the Society.—J.F.G.C.

Callitriche intermedia Hoffm. 107, East Sutherland, Kyle of Sutherland, Invershin, Oct. 14th, 1946.—Coll. C. W. MUIRHEAD, comm. CARLISLE MUSEUM. " This is the same thing as Mr Wallace's plant (see below) but really should be sent for *Record* only; not good for distribution without fruits."—A. J. WILMOTT.

Callitriche intermedia Hoffm. (Ref. No. 5600.) 108, West Sutherland: clear rocky pool, Breabag, alt. 2000 ft., near Inchnadamph, Sept. 14th, 1946.—E. C. WALLACE. " The fine leaved plant. Its relation to the ordinary *intermedia* needs investigation. I have never found a satisfactory name or account of it."—A. J. WILMOTT.

Epilobium montanum L. (Ref. No. 46133.) 65, N.W. Yorks.; waste ground, Great North Road near Bedale Hunt Inn, Baldersby, June 3rd, 1946.—C. M. ROB. " Yes, these are all good examples of *E. montanum* L."—G. M. ASH.

Petasites hybridus (L.) Gaertn. M. & S. female plant. 70, Cumberland; River Irthing, Lanercost, May 9th, 1946.—Coll. D. V. ROBSON, comm. CARLISLE MUSEUM. " The female plant has quite a restricted distribution in this country, with its headquarters in Yorks. and Lancs., and not going further north than Cumberland and Northumberland, with one or two old records in South Scotland which need confirmation."—D. H. VALENTINE.

Senecio squalidus L. × *vulgaris* L. (Ref. No. 466175.) 23, Oxon.: rubbish tip, Port Meadow, Oxford, June 17th, 1946.—Coll. J. P. M. Brenan and J. F. G. Chapple, comm. J.F.G.C. "These specimens came from one very large plant which was kindly shown to me by J. P. M. Brenan, who contributes the following useful note:—'Often as the two species grown in company about Oxford, this is the first time that I have encountered the hybrid. The lax arrangement of the capitula was striking, and the colour of the ray florets, though slightly paler than in *S. squalidus*, was much deeper than the lemon-yellow usually (? always) seen in the rays of *S. vulgaris* var. *radiatus* Koch. The achenes were more or less pubescent, but uniformly shrivelled, and abortive. In view of the difficulty in distinguishing the hybrid from *S. vulgaris* var. *radiatus*, especially with poor dried material unaccompanied by field notes, a small, apparently overlooked, but possibly useful difference in the disc florets, separating *S. vulgaris* from *S. squalidus*, is worth mentioning. The papilliform hairs at the ends of the stigmatic arms of *S. vulgaris* are few and short, or almost absent; in *S. squalidus* they are longer and much more numerous, making a well-marked conical tuft. Those of the Port Meadow (hybrid) plants were intermediate in length and number, though resembling more those of *S. squalidus* than *S. vulgaris*. A lens of magnification not less than about 20 × is desirable for seeing the hairs clearly.'—J. P. M. Brenan."

Cirsium helenioides (L.) Hill. var. *legitimum* (Gaud.) Sledge comb. nov.—Det. W. A. Sledge. ["*C. heterophyllum* (L.) Hill."] 70, Cumberland; Gilsland, August 17th, 1946.—Coll. Rev. G. A. K. Hervey. comm. Carlisle Museum. [See Nomenclature notes, p. 251.]

Cirsium arvense (L.) Scop. (Ref. No. 5785.) 17, Surrey; Nonsuch Park, Ewell, August 23rd, 1946. "A form which occurred in several large patches differing from neighbouring normal forms of this thistle in flowering much later, leaves paler green, flatter and not so prickly. Flower heads seemed to be smaller than usual but this and the other differences enumerated are somewhat lost in the dried specimens. In my opinion, scarcely worth distinguishing save as a habitat form."—E. C. Wallace. "A biotype of *C. arvense* (L.) Scop."—W. A. Sledge.

Centaurium littorale (Turner) Gilmour. 70, Cumberland; Anthorn to Cardunock on Solway, August 10th, 1943.—Coll. C. W. Muirhead. comm. Carlisle Museum. "Yes; this gathering certainly comes under *C. littorale* (Turner) Gilmour. The varieties of this species have not yet been worked out thoroughly enough in Britain to give a varietal name with certainty; it is the form with less scaberulity on the calyx and pedicels than, for example, the plants at Formby, Lancs."—J. S. L. Gilmour.

Gentiana anglica Pugsley. (Ref. No. 5073.) 8, S. Wilts.; Down. near Stockton Earthworks, June 11th, 1946.—J. D. Grose. "Correctly named."—H. W. Pugsley.

Gentiana anglica Pugsley. (Ref. No. 5804.) 17, Surrey; thin chalk downland turf on Banstead Downs, June 9th, 1946.—E. C. WALLACE. "Yes; very luxuriant specimens."—H. W. PUGSLEY. "My sheet contains remarkably fine, robust specimens. The abnormal weather conditions of 1946 (a dry, sunny April and early May followed by a wet, cold month) seem to have been particularly favourable for the growth of this species, which was much more abundant than usual on the Wiltshire downs."—J. D. GROSE.

Myosotis versicolor Sm. var. *dubia* (Arrond.) Drabble. (Ref. No. 4894.) 39, Staffs.; Forton, north side of Aqualate Mere, on a wet path shaded by trees, and bordered with *Polygonum Hydropiper*, June 29th, 1946.—E. S. EDEES. "Correctly named."—A. E. WADE.

Veronica filiformis Smith. (Ref. No. 4625.) 62, N.E. Yorks.; river bank about a mile below Catton Village, May 4th, 1946. This species is well established near Reeth in upper Swaledale, but I have never seen it in the lower part of the dale even as a garden plant.—C. M. ROB. "This pretty little garden flower is a native of the Near East and was added to the *Plant List* on the strength of cultivated material sent for identification (*B.E.C. 1932 Rep.*, 28, 1933). In recent years it has become thoroughly well established in many places ranging from Surrey and Sussex to Somerset and Glasgow and tends to follow the banks of streams to far below the gardens from which it escapes. See also *B.E.C. 1937 Rep.*, 627, 1938, and *Watson B.E.C. 1933/4 Rep.*, 223, 1934. It should not be confused with *V. filiformis* Lam. & DC. under which name *V. persica* was figured and described in Johnston's *Flora of Berwick-upon-Tweed*, Vol. 1, frontispiece and p. 225, 1829.—J. E. LOUSLEY.

Euphrasia nemorosa (Pers.) Löhr, det. H. W. Pugsley. (Ref. No. 5214.) 8, S. Wilts.; between Burridge Heath and Bagshot, August 25th, 1946.—J. D. GROSE.

Euphrasia nemorosa (Pers.) Löhr var. *collina* Pugsl. ["*E. nemorosa* Pers."] (Ref. No. 46194.) 62, N.E. Yorks.; rough pasture, Kennels Farm, Knayton Moor, Aug. 2nd, 1946.—C. M. ROB. "This is *E. nemorosa* Löhr var. *collina* Pugsl., the usual form of the species in Yorkshire."—H. W. PUGSLEY.

Euphrasia confusa Pugsl. ["*Euphrasia* ——."] 70, Cumberland; sandhills at Silloth, Sept. 9th, 1946.—Coll. C. W. MUIRHEAD, comm. CARLISLE MUSEUM. "I think this is an unusual form of *E. confusa* (f. *albida*) Pugsl. gathered late and in rather poor condition. Many of the specimens are nibbled and fragmentary."—H. W. PUGSLEY.

Euphrasia confusa (f. *albida*) Pugsl. det. H. W. Pugsley. ["*Euphrasia* ——."] 70. Cumberland; Whinlatter Pass, alt. 1000 ft., August 11th, 1946.—Coll. C. W. MUIRHEAD, comm. CARLISLE MUSEUM.

Rhinanthus minor Ehrh. (Ref. No. 4886.) 7, N. Wilts.; railway bank near Hullavington, on limestone, July 7th, 1945.—J. D. GROSE. "It is difficult to find any way of separating these narrow-leaved forms from the broader-leaved specimens of the plant which has in the past been separated as *R. stenophyllus* (as opposed to the shorter-broader-leaved plant which I have taken to be typical *R. minor* Ehrh.). There are several distinct-looking forms which have so far defied my attempts to discover any constant characters by which to define them."—A. J. WILMOTT.

Rhinanthus minor Ehrh. (Ref. No. 5092.) 7, N. Wilts.; Bishopstone Downs, on chalk, June 20th, 1946.—J. D. GROSE. "This appears to be identical with 4886 except in lesser stature and a tendency—frequently found in '*R. stenophyllus*'—to have the lower internodes contracted."—A. J. WILMOTT.

Rhinanthus calcareus Wilmott. (Ref. No. 5234.) 8, S. Wilts.; Chirton Maggot, Sept. 9th, 1946.—J. D. GROSE. "Yes; characteristic smallish specimens of *R. calcareus*."—A. J. WILMOTT.

Utricularia vulgaris L. (Ref. No. 4680162.) 22, Berks.; stagnant pool, Kennington, Aug. 16th, 1946.—J. F. G. CHAPPLE.

Atriplex patula L. ["*A. patula* var. *erecta* Lange."] (Ref. No. 4964.) 7, N. Wilts.; cornfield, Foxham, Aug. 22nd, 1945. All specimens were taken from a single plant.—J. D. GROSE. "This is a form of *A. patula* L., but as the leaves are not represented it is impossible to give a critical determination. The coarseness of the growth is that usually found in specimens from rich soil."—A. J. WILMOTT.

Atriplex patula L. ["*A. patula* var. *bracteata* Westerlund."] (Ref. No. 4965.) 7, N. Wilts.; cornfield, Foxham, Aug. 22nd, 1945. All specimens were taken from a single plant.—J. D. GROSE. "None of these is as extreme as the form (? of manured ground) originally called var. *bracteata*; it is the existence of these transitional forms which cause one to suspect that the var. '*bracteata*' is nothing but an 'ecad.' Part of the main stem showing fully-developed foliage should always be collected in this group."—A. J. WILMOTT.

Polygonum lapathifolium L. (Ref. No. 5206.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946. A green-flowered form with unspotted stem.—J. D. GROSE. "Correct."—A. J. WILMOTT.

Polygonum lapathifolium L. (Ref. No. 5207.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946. A greenish-pink form with unspotted stem.—J. D. GROSE. "Correct."—A. J. WILMOTT.

Polygonum lapathifolium L. (Ref. No. 5208.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946. A greenish-pink form with spotted stem.—J. D. GROSE. "Correct."—A. J. WILMOTT.

Polygonum nodosum Pers. (Ref. No. 5209.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946.—J. D. GROSE. "Yes."—A. J. WILMOTT.

Polygonum Persicaria L. var. *elatum* Gren. & Godr. (Ref. No. 5210.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946.—J. D. GROSE. "Under var. *elatum* as described by C. E. Britton (*l.c.*); leaves rather narrow but not as extreme as his no. 3902 labelled f. *angustifolium* K. Beck.?"—A. J. WILMOTT.

Polygonum Persicaria L. var. *elatum* G. & G. ["*P. Persicaria* L var. *agreste* Meisn.?"] (Ref. No. 5211.) 7, N. Wilts.; North Wroughton, Aug. 19th, 1946. The plants distributed under Nos. 5206 to 5211 grew together in a field which had been planted with potatoes. The crop was a complete failure, and the Polygona grew in a dense mass over about an acre of ground almost to the exclusion of other species except low-growing ones. The dominant was *P. nodosum* (Ref. No. 5209) but a tall much-branched form of *P. lapathifolium* (Ref. No. 5208) with red-spotted stem was almost as abundant and in some places the dominant.—J. D. GROSE. "This does not agree with the description given by C. E. Britton (1933: *J.B.*, *71*, 92), but I have seen no specimens named by him. It seems to match specimens which he calls var. *elatum* G. & G."—A. J. WILMOTT.

Polygonum microspermum Jord. (Ref. No. 5823.) 17, Surrey; in great abundance on gravelly tracks on Headley Heath; prostrate and closely appressed to the ground, Aug. 20th, 1946. Military activities have provided large areas of bare gravelly soil, being covered with mats of this plant and *Spergularia rubra*, which used to occur very sparingly before. See *Rep. B.E.C. 1932*, 447-449, for references to Surrey plants from various localities.—E. C. WALLACE. "Plants like these from Surrey (Mitcham Common) were identified with *P. microspermum* Jord. over 50 years ago (see *1879 Rep.*, 18, and *1881 Rep.*, 55). Later the name was dropped from the London Catalogue, but it seems to be a very distinct plant."—A. J. WILMOTT.

Polygonum pensylvanicum L. var. *laevigatum* Fernald in *Rhodora 19*, 70, 1917. Hort. Streatham from seed gathered in Oct. 1945 outside Soya Foods Ltd., Harefield, Middlesex, v.-c. 21.—Leg. and comm. J. E. LOUSLEY. [See Plant Notes, p. 274.]

Rumex maritimus L. (Ref. No. 5322.) 39, Staffs.; abundant on the caked mud of a dried-up pool south of Highgate Common, Enville, Aug. 14th, 1946.—E. S. EDEES. "Yes, a nice gathering showing variation only in size and state of maturity. The species is apparently rare in Staffordshire, for which vice-county the record in *Topographical Botany* is based on a specimen supplied by Douglas. In Herb. Boswell-Syme there is material collected by R. C. Douglas at Hopton Pools near Stafford."—J. E. LOUSLEY.

Euphorbia platyphyllos L. (Ref. No. 46.) 63, S.W. Yorks.; corn field, Stainforth, Sept. 5th, 1946.—W. A. SLEDGE. " Acceptable specimens of a plant decidedly scarce everywhere and seldom seen so far north as Yorkshire."—E. C. WALLACE.

Euphorbia stricta L. (Ref. No. 1245.) 34, W. Glos.; plentiful on rubbish tips, roadside, between Upper Forge and New Mills, near Lydney, July 3rd, 1946.—R. LEWIS.

Ulmus glabra Huds. × *U. stricta* Lindl. (?). [" *Ulmus* ——."] (Ref. No. 5256.) 7, N. Wilts.; Crooked Soley, Sept. 22nd, 1946.—J. D. GROSE. " This is probably a segregate of the hybrid *U. glabra* × *stricta* tending more towards *U. stricta*. Rather similar forms have been seen near Sparkford in Somerset."—R. MELVILLE.

Ulmus glabra Huds. × small-leaved elm; det. R. Melville. (Ref. No. 4576.) 17, Surrey; Dower House Grounds, Cheam, April 5th, May 1st, and Aug. 17th, 1942.—E. C. WALLACE. " The small-leaved elm of the lower Thames basin and East Anglia is a polymorphic species sharing some features in common with *U. Plotii* Druce. It is evidenced in this hybrid by the shape and other characters of the leaves and the occurrence of ' semi-long ' shoots in addition to the normal short shoots. Not all the features are shown on each sheet, but short shoots, which should always be exemplified, are generally well represented."—R. MELVILLE.

Salix fragilis L. (Ref. No. 4615.) 62, N.E. Yorks.; wood, Waters House, near Topcliffe Station, April 19th, 1946. Unfortunately the tree was so badly damaged by fire it was not possible to collect mature leaves.—C. M. ROB. " Mature leaves would have been useful to confirm that the silky pubescence of the leaves was fugitive. My specimen bears one forked catkin."—J. D. GROSE.

Salix alba L. var. *vitellina* (L.) Stokes. [" *S. alba* L."] (Ref. No. 5006.) 7, N. Wilts.; Great Wood, Stanton, April 14th (twigs golden); Sept. 17th (twigs pale brown); Dec. 1st, 1946 (twigs yellow). Nos. 5005 and 5006 may perhaps come under var. *vitellina* (L.) Stokes, but the leaves remain silky above until maturity. It will be noted that in each case the colour of the twigs varies with the seasons, but that they are constantly different from each other. Further, the twigs of 5005 are more or less fragile at the base, while those of 5006 are very tough. The two trees selected were of about the same age.—J. D. GROSE. " *S. alba* L. var. *vitellina* (L.) Stokes. There is some variation in the amount of indumentum retained on mature leaves in this variety."—R. MELVILLE.

Salix alba L. × *S. fragilis* L. forma ad *S. alba M. vergens* [" *S. alba* L."] (Ref. No. 5007.) 7, N. Wilts.; Great Wood, Stanton, April 14th (twigs purple-brown); Sept. 17th (twigs grey-brown); Dec. 1st, 1946 (twigs grey-green).—J. D. GROSE. "On many of the sheets branch scars showing the short fracture characteristic of *S. fragilis* can be seen."—R. MELVILLE.

Salix alba L. × *S. fragilis* L. forma ad *S. alba M. vergens*, det. R. MELVILLE. ["*S. alba* L."] (Ref. No. 5005.) 7, N. Wilts.; Great Wood, Stanton, April 14th (twigs red); Sept. 17th (twigs red-brown); Dec. 1st, 1946 (twigs red-purple).—J. D. GROSE.

Salix purpurea L. × *S. viminalis* L. (×*S. rubra* Huds.), det. R. MELVILLE. ["*S. viminalis* L."] (Ref. No. 4612.) 62, N.E. Yorks.; Willow garth, Catton, April 6th and June 30th, 1946.—C. M. ROB.

Salix caprea L. × *S. viminalis* L., det. R. MELVILLE. (Ref. No. 4611.) 62, N.E. Yorks.; Willow garth, Catton, April 6th and June 30th, 1946.—C. M. ROB. "Hybrids between *S. viminalis* and the various Sallows are difficult to distinguish, but I think both this and No. 469 are the hybrid with *S. atrocinerea* Brot."—A. J. WILMOTT.

Salix caprea L. × *S. viminalis* L. (×*S. affinis* Gren. & Godr. × *S. Smithiana* auct.), det. R. MELVILLE. "*S. atrocinerea* Brot. × *S. viminalis* L., det. A. J. WILMOTT. (Ref. No. 469.) 62, N.E. Yorks.; Willow garth, Catton, April 6th and June 30th, 1946.—C. M. ROB.

Salix atrocinerea Brot. × *S. aurita* L. (Ref. No. 4610.) 62, N.E. Yorks.; Willow garth, Catton, April 6th and June 30th, 1946.—C. M. ROB. "Yes."—A. J. WILMOTT and R. MELVILLE. "A very good intermediate and with smaller leaves and catkins than usual. The ♀ of this combination seems to be commoner than the ♂."—J. D. GROSE.

Hydrilla verticillata (L. f.) Royle. (Ref. No. 5901.) Salsette Island, Bombay, India; pond by railway near Santa Cruz, Feb. 16th, 1946. Members will doubtless welcome these flowering examples for comparison with our non-flowering plant of Esthwaite and Connemara. Growing in dense masses and being left dry as the pond slowly dried. Most specimens show ovoid resting buds on short lateral pedicels.—E. C. WALLACE. "*Hydrilla verticillata* (L. f.) Royle: typical material from India, from which country the species was originally described by the younger Linnaeus. The gathering comprises flowering female plants, showing well the slender pedicel-like ovary-neck surmounted by the tiny perianth. The basal part of the ovary, containing the ovules, is sessile within an axillary spathe. In each flower there are three *entire* styles, a character which distinguishes this Old World genus from *Elodea*, its New World counterpart. Ovoid turions, for vegetative reproduction, are also present in Mr Wallace's gathering. The plant is of particular interest to British botanists, as *H. verticillata*, in an aggregate sense, is held to extend to Europe, including the British Isles."—J. E. DANDY.

Allium oleraceum L. var. *complanatum* Fries. 70. Cumberland; edge of Wedholme Flow near Lessonhall, Aug. 5th, 1946.—Coll. Mrs J. S. MUIRHEAD, comm. CARLISLE MUSEUM. "Fries described his plant as having rose-coloured flowers (as has this specimen) but identified with it '*A. carinatum* L.,' sec. Smith, *Engl. Bot.*, t. 1658, in which they are 'dull brownish-yellow, the keels of the petals darker or greenish.' This accords better with the description given by Boreau, who regarded the plant as specifically distinct from *A. oleraceum* L. The status of the plant needs investigation."—B. L. BURTT.

Juncus effusus L. × *J. inflexus* L. (Ref. No. 4690155.) 23, Oxon.; Northleigh Common, Sept. 15th, 1946.—J. F. G. CHAPPLE. "First found in this locality by G. C. Druce in 1884; see *Fl. Oxfordsh.*, *ii*, 431 (1927). Growing in considerable quantity with both parent species. This hybrid, although widely distributed in Britain, seems to be very local."—J.F.G.C. "Yes; good specimens of the common form of this hybrid (×*J. diffusus* Hoppe). A useful character for recognising the hybrid is the number of ridges or striations on the stem, which are more numerous than in *J. inflexus*, but less numerous and more prominent than in *J. effusus*. (*J. inflexus* 12-18; *J. inflexus* × *J. effusus* 18-45 (commonly about 30); *J. effusus* 40-90.)"—P. W. RICHARDS.

Juncus acutiflorus (Ehrh.) Hoffm. × *J. articulatus* L. (Ref. No. 4690291.) 22, Berks.; seepage zone, Hagley Pool, near Wytham, Sept. 29th, 1946.—J. F. G. CHAPPLE. "This plant agrees almost exactly with the tabular description given of the hybrid by E. W. Timm and A. R. Clapham in 'Jointed Rushes of the Oxford District,' *New Phyt.*, *39*, 7 (1940). It is from a locality mentioned by them (*l.c.*) where it forms a small, but very profuse, population on the seepage zone in a meadow sloping towards the river at Hagley Pool, where it is associated with *J. acutiflorus* on the dryer ground, *J. articulatus* in the wetter and barer places, and the rush referred to by Timm and Clapham (*l.c.*) as 'large 80.' It represents a different form from No. 4690303, discussed below, and, in my opinion, more closely resembles *J. articulatus* than *J. acutiflorus* as is shown by the following characters possessed by this hybrid which are derived from the former species. Slender rhizome, with stems 'bunched' on the rhizome giving it an almost sub-caespitose appearance in the field. Average number of leaves per flowering stem 5 (as in *J. articulatus*). Ascending panicle branches with only occasionally widely spreading, shorter branches. Heads of flowers few-flowered, average 4.4 (*J. acutiflorus* and *J. articulatus* average 11 and 6 respectively). Inner perianth segments = outer. Perianth segments brown to dark-brown. From limited field observations, and judging by its occurrence in herbaria, this form of the hybrid appears to be less frequent than that represented by No. 4690303."—J.F.G.C. "Yes; good material of this hybrid."—P. W. RICHARDS.

Juncus acutiflorus (Ehrh.) Hoffm. × *J. articulatus* L. (Ref. No. 4690303.) 22, Berks.; Cumnor, Sept. 30th, 1946.—J. F. G. CHAPPLE. "This plant is from a small marsh (basic), associated with *J. subnodulosus*, *J. acutiflorus* sparingly on drier ground, and *J. articulatus* sparingly in the wetter parts. Apart from *J. subnodulosus*, it is the dominant rush in the marsh (of an area of approximately 100 sq. metres), and grows in profusion. It represents, in my view, the commoner form of the hybrid (certainly in the neighbourhood of Oxford), is a good intermediate taking into account all its characters, and can easily be confused, especially when not fully developed, with *J. acutiflorus* both in the field and herbarium, on account of its panicle branching, numerous heads of flowers, and few, stiff, somewhat long leaves. As with No. 4690291, it sometimes, but in a less marked degree, gives the appearance in the field of having a tufted habit. Distinctive characters common to both forms, i.e., Nos. 4690291 and 4690303, are:—(a) vigorous and profuse growth, sometimes dominant over the parent species: (b) complete sterility (often capsules are not formed, but when they are, only an occasional unformed seed will be found—more often none at all); (c) prolonged and late period of flowering. No 4690291 was still in flower on 1st October! No. 4690303, which I was able to observe throughout the season, was flowering from the end of June until the end of September, beginning to flower after *J. articulatus* (which is in flower in mid-June) but before *J. acutiflorus*, and remaining in flower after the latter was over. (d) The bright cherry-pink colour of the scales of the young autumnal buds. This character appears to be derived from *J. articulatus*, and is well shown on both numbers distributed, particularly No. 4690291. The scales of the young buds of *J. acutiflorus* are normally pure white, but sometimes may be very faintly suffused with pink."—J.F.G.C.

×*Potamogeton Lintonii* Fryer. (Ref. No. 7465.) 16, W. Kent; R. Darent, Dunton Green, Sept. 17th, 1946.—J. P. M. BRENAN. "This interesting plant was discovered and collected in the same locality by Mr Brenan (Ref. No. 5210) on Sept. 8th, 1938—a new county record. It appears to be identical with the ×*P. Lintonii* long known from the R. Wey and Tillingbourne in Surrey and found at a distance of less than 30 miles west of the Dunton Green locality. One of the parent species (*P. crispus*) occurs in the R. Darent, but the other (*P. Friesii*) is not known to us from this river. The record of *P. Friesii* from near Dartford, published in Hanbury and Marshall's *Flora of Kent*, p. 365 (1899), is an error, the plant being *P. obtusifolius*."—J. E. DANDY and G. TAYLOR.

Zannichellia gibberosa Rchb. (Ref. No. 3079.) 6, N. Somerset; water bunker on golf links in the dune marsh at Berrow, in great quantity, Aug. 31st, 1945 (none seen in 1946).—C. I. and N. Y. SANDWITH. "This plant was discovered by my mother and myself on 31st August

1945, growing in abundance in a water bunker on the golf links on Berrow sand-dunes, N. Somerset. This is apparently a first record for vice-county 6, and the species has not previously been detected in the Bristol district. It has, however, been recorded from S. Somerset, v.-c. 5: Mr H. S. Thompson collected it in the canal at Bridgwater in 1888, and Mr Arthur Bennett's identification, '*Z. gibberosa* Reichb., or near it,' was published in the Fifth Report of the *Watson Botanical Exchange Club*, p. 8 (1889), and in Murray's *Flora of Somerset*, p. 348 (1896). As pointed out by Rev. E. S. Marshall, 1914: *Suppl. Fl. Somerset*, 194, this was apparently the first discovery, as it was also the first published record, of the occurrence of the species in Britain. Later, Dr G. C. Druce published a note on *Z. gibberosa*, 1910: *B.E.C. 1909 Rep.*, p. 420. It is now known from at least 13 vice-counties in England and Wales. The fully ripe fruits of British *Z. gibberosa* are conspicuously aculeate-cristate on and near both margins. Reichenbach's own figure, in *Pl. Crit.*, viii, 1006 (1830), which was presumably drawn from immature fruits, shows them merely winged and crenate-dentate. Other characters stressed by Reichenbach are the very slender, almost hair-like leaves and the long styles. Such leaves are very evident in material collected by H. C. Watson near Chessington, Surrey, and now preserved in the Kew Herbarium, but less so on the Berrow plants, which were already beginning to rot at the end of August. The styles on both the Berrow and Chessington material are considerably shorter than the fruits. In an article on British forms of *Zannichellia*, 1933: *B.E.C. 1932 Rep.*, p. 240, W. H. Pearsall treated *Z. gibberosa* as a variety of *Z. pedicellata* Fries. It had already been reduced by Ascherson and Graebner, 1897: *Syn. Mitteleurop. Fl.*, *1*, 364, as *Z. palustris* L., race *pedicellata* var. *gibberosa*; while Graebner in Engler, 1907: *Pflanzenreich*, IV, ii, 156, treated it as *Z. palustris*, race *pedicellata*, var. *pedunculata*, subvar. *gibberosa*. Pearsall did not refer to the earliest publication of *Z. gibberosa*, 1829: Reichenbach in Mössler's *Handbuch der Gewächskunde*, ed. ii, *3*, 1591, as given in *Index Kewensis*. The Type was collected on the Elbe near Hamburg. It is clear that the British forms of *Zannichellia* need much further study before their names, rank and relationships can be determined. In particular, the value of characters taken from the inflorescence and fruits must be tested by cultivation. For instance, does the plant which we are calling *gibberosa* always produce fruits with both margins aculeate, and can this character be correlated with more slender growth and, if so, is this combination of characters of genetic or merely of physiological or ecological significance? Material from Berrow is being cultivated at Clifton and an attempt has been made to preserve some of it in the Water Garden at Kew.—N. Y. Sandwith.

Carex saxatilis L. (Ref. No. 44.) 97, W. Inverness; North Corrie, Ben Alder, alt. 3000 ft., Aug. 12th, 1946.—W. A. Sledge.

Carex laevigata Sm. = *C. helodes* Link. (Ref. No. 1242.) 34, W. Glos.; Mailscot Wood, Forest of Dean, near Staunton, July 2nd, 1946. —R. LEWIS. "Yes."—E. NELMES.

Carex punctata Gaud. 2, E. Cornwall; frequent on moist sea cliff ledges about a mile west of Charleston, Aug. 12th, 1946.—R. C. L. BURGES. "Yes."—E. NELMES.

Carex Hostiana DC. × *lepidocarpa* Tausch (×*C. Leutzii* Aschers. et Graebn.) [*C. fulva* Host × *lepidocarpa* Tausch.] 64, M.W. Yorks.: Ripon Parks, June 23rd, 1938.—C. M. ROB. "It seems safe to assume that *C. lepidocarpa* is the '*flava*' parent for the following reasons:—(1) Miss Rob has collected this species at this locality; (2) it and *C. tumidicarpa* Anderss. rarely or never grow together; and (3) *C. flava* L. and *C. serotina* Mérat are unknown from this district. This is a remarkable plant. In each of the 36 flowering culms collected the terminal spike is female, often with one or two smaller female spikes at its base. I have seen a considerable number of specimens of *C. Hostiana* × *lepidocarpa*, but in none has the terminal spike been other than wholly male. The spikes in Miss Rob's plant are also smaller and more sterile in appearance than is usual. All the above-mentioned characters are regressive, apparently induced by hybridization. If ×*C. Leutzii* can be taken to cover all the hybrids between *C. Hostiana* are regressive, apparently induced by hybridization. If ×*C. Leutzii* can be taken to cover all the hybrids between *C. Hostiana* and *C. lepidocarpa*, then it is correctly used here, but the Ripon plant is most likely to be distinct from that to which *C. Leutzii* was first applied. It would be well if members would try to collect the likely parents with suspected hybrid *Carices*, so that a number of authentic gatherings could be preserved."—E. NELMES. See also *B.E.C. 1938 Rep.*, 202 (1942).

Carex digitata L. 35, Monmouth: Lady Park Wood, near Monmouth, April 21st, 1946.—R. LEWIS.

Carex aquatilis Wahl. × *C. recta* Boott ("*C. salina* Wahl. var. *kattegatensis* (Fr.) Almq.") 109, Caithness; Wick River, July 1st. 1946. A mixed collection of this very variable sedge, with probably intermediates between this and *C. aquatilis* Wahl. The mass of sedges by the Wick River are very puzzling, and will well repay further careful study.—R. C. L. BURGES. "*C. aquatilis* × *recta* (×*C. Grantii* A. Benn.), various forms of the hybrid, some nearer one parent and some the other."—E. NELMES. "The end of August appears to be the best time for studying the *Carices* found by the Wick River for some two or three miles above Wick. In 1946 I found many distinct forms in excellent fruiting condition in early September which greatly facilitated their determination."—E. C. WALLACE.

Carex elongata L. (Ref. No. 43.) 63, S.W. Yorks.; Fishlake near Thorne, June 11th, 1946.—W. A. SLEDGE.

×*Carex Kneuckeriana* Zahn, *C. Otrubae* Podp. × *C. remota* L. ["*Carex axillaris* Good."] 65, N.W. Yorks.; Carthorpe Moor near Bedale, Aug. 31st, 1938.—C. M. ROB. See *B.E.C. 1938 Rep.*, 203-204 (1942). "*Carex Otrubae* × *remota* (*C. Kneuckeriana* Zahn; *C. remota* × *vulpina* Crépin f. *Kneuckeriana* (Zahn) Aschers. et Graebn.; *C. axillaris* Gooden. non L.; *C. Crepinii* Torges). Some of the flowering stems as usual bearing only simple spikes which allows us to choose ×*C. Kneuckeriana* Zahn as the correct name for this hybrid. It was originally applied to a specimen bearing only simple spikes, but both simple and compound-spiked stems are to be found on many plants of this hybrid. ×*C. Crepinii* Torges, given as its name in the reference to the above gathering in *B.E.C. Report for 1938*, was first published in 1893, three years later than ×*C. Kneuckeriana*."—E. NELMES.

Carex vulpina L. (Ref. No. 468015.) 23, Oxon.; in dense shade in wet oak-wood, on peat, Otmoor, near Beckley.—Coll. J. F. G. CHAPPLE and J. P. M. BRENAN, Aug. 1st, 1936. "Discovered in this locality on June 2nd, 1946, by J. P. M. Brenan, R. A. H. Graham and myself, thus confirming the record for Oxfordshire referred to, 1939: *Journ. Bot.*, 77, 260—'neighbourhood of Oxford,' 1881, H. E. Garnsey in Herb. Bot. Inst. Univ. Vienna. The Otmoor locality could be described as in the 'neighbourhood of Oxford,' but the wood in which it grows is, for this part of the country, remote and not easy of access, and I am inclined to the opinion that this is not where Garnsey collected *C. vulpina*. *C. vulpina* has not so far been discovered elsewhere in the Oxford district. *C. vulpina* here grows in the wettest portion of a wet Oak wood under a practically unbroken canopy of shade formed by the Oaks. It does not extend outside the wood (where *C. Otrubae* Podp. is frequent) or even to the ditch surrounding the wood. The plants distributed display well the character of the blackish, fibrous, basal sheaths pointed out by Kerna and referred to by E. Nelmes, 1942: *B.E.C. 1939-40 Rep.*, 427." —J.F.G.C. "Typical specimens, an interesting discovery in view of the fact that the earliest known British gathering of this species was from near Oxford in 1881."—E. NELMES.

Carex Otrubae Podp. 70, Cumberland; Brownrigg Marsh, Abbey Town, Aug. 3rd, 1946.—Coll. C. W. MUIRHEAD, comm. CARLISLE MUSEUM.

Alopecurus aequalis Sobol. (Ref. No. 1570.) 28, W. Norfolk; dried-up pond, Appleton, Aug. 4th, 1946.—E. L. SWANN.

Catabrosa aquatica (L.) Beauv. var. *littoralis* Parn. (Ref. No. 5706.) 109, Caithness; wet sand on shore, Dunnet Links, Sept. 7th, 1946. Rooting at the nodes and sending short runners over the wet sand in which it was growing. Much nibbled by rabbits, as at Reay, where it also occurs. Similar specimens from the Firth of Clyde and other areas have been named as variety *uniflora* Gray, which is apparently synonymous with *littoralis* Parn. See *Rep. B.E.C.*, 502. 1895; *Ann. Scott. Nat. Hist.*, 172, 1905; 235, 1910; *Irish Nat.*, 39, 1911; *Wats. B.E.C.*, 558, 1915 and 1916.—E. C. WALLACE. "Correctly named."—C. E. HUBBARD.

Poa palustris L. (Ref. No. 1567.) 28, W. Norfolk; in shade and damp soil, Castleacre, Aug. 24th, 1946.—E. L. SWANN.

Poa pratensis L. 109, Caithness; cliff, facing the Thurso River, July 3rd, 1946, an unusual stout form.—R. C. L. BURGES. "*P. pratensis* L. (*sensu lato*.)"—C. E. HUBBARD.

Vulpia megalura (Nutt.) Rydb. (Ref. No. 1569.) 28, W. Norfolk; in sandy soil beside railway, Waveland Farm, Grimston, May 8th, 1946. An American alien, new to the British Isles, probably introduced in "Lend-Lease" seeds, especially of carrots. It differs from *F. Myuros* L., chiefly in the presence of cilia on the upper margins of the lemmas. —E. L. SWANN. "Correct."—W. O. HOWARTH.

Festuca elatior L. × *Lolium perenne* L. (Ref. No. 5852.) 17, Surrey; damp pasture, West Ewell, June 23rd, 1946.—E. C. WALLACE. "Correct."—W. O. HOWARTH.

Festuca ovina L. (Ref. No. 1241.) 34, W. Glos.; wall top, near Buckstone, Staunton Meend, near Coleford, June 10th, 1946.—R. LEWIS. "Correct."—W. O. HOWARTH.

Bromus erectus Huds. var. *villosus* Leight. (Ref. No. 1571.) 28, W. Norfolk; copse margin on chalk, Paston's Clump, Anmer, June 16th, 1946.—E. L. SWANN. "Rather variable as to the degree of hairiness of the spikelets. Most of the sheets are quite typical of *Bromus erectus* Huds. var. *villosus* Leight., but others have less hairy spikelets and are more or less intermediate between var. *villosus* and typical *B. erectus*." —C. E. HUBBARD.

Bromus Thominii Hard., det. C. E. Hubbard. ["*Bromus commutatus* Schrad."] 65, N.W. Yorks.; seedfield near railway bridge, Baldersby, July 1st, 1946.—C. M. ROB.

Bromus racemosus L., det. C. E. Hubbard. ["*Bromus commutatus* Schrad."] 65, N.W. Yorks.; seedfield near railway bridge, Baldersby, July 1st, 1946.—C. M. ROB.

Agropyron repens (L.) Beauv. var. *aristatum* Baumg., det. C. E. Hubbard. ["*Agropyron repens* L. var. *Vaillantianum* (Wulf.) R. & S."] 41, Glam.; waste ground, Cathays Park, Cardiff, July 22nd, 1946.—Coll A. E. WADE, comm. DEPT. OF BOTANY, NATIONAL MUSEUM OF WALES.

Pholiurus incurvus (L.) Schinz & Thell. (Ref. No. 1568.) 28, W. Norfolk; in damp sandy " lows " near beach, Wolferton, June 1946.—E. L. Swann.

Equisetum sylvaticum L. (Ref. No. 1243.) 34, W. Glos.; Mailscot Wood, Forest of Dean, near Staunton, July 2nd, 1946.—R. Lewis.

Ceterach officinarum DC. var. *crenatum* Moore. (Ref. No. 1192.) 35, Monm.; railway embankment wall between Monmouth and Hadnock, Feb. 10th, 1946.—R. Lewis. " The authority should be Moore and not Milde. Moore described the plant in the folio edn. of his *Nature-printed Ferns* (1855) and illustrated it t. 43A f. 3 and 4. He had specimens collected in Clare by Dr Allchin, and at Crickhowell by J. R. Cobb. Moore's plate shows a longer stipe and broader segments, but it is probable that it is only an ecological state. F. J. Foot, in his paper on ' The Ferns of West Clare ' (*Nat. Hist. Rev., VII* (1860/f.38), mentions specimens from Ennis with fronds 12 to 18 inches long and deeply serrated margins."—A. H. G. Alston.

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